



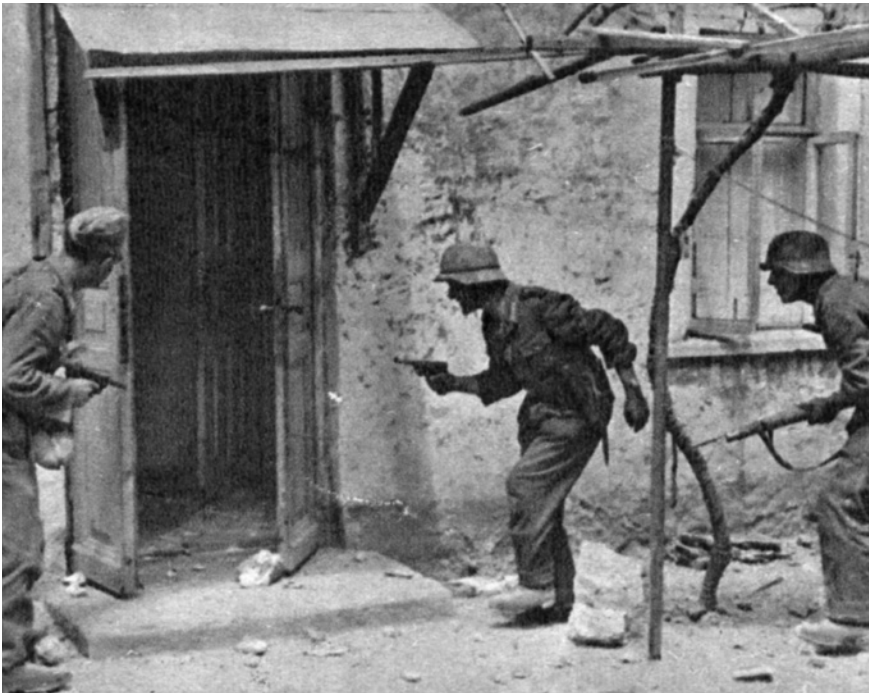
THE LUGER

NEIL GRANT





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INTRODUCTION

The Luger is among the most famous 20th-century pistols. Its distinctive appearance has been immortalized in countless war movies and books, but its importance goes well beyond this. It evolved from the Borchardt, the first true semi-automatic pistol and the first weapon with a detachable box magazine. It dominated the semi-automatic pistol market for the first decades of the 20th century, and was adopted by countries from Bulgaria to Chile and from Norway to Persia. It is most famous, though, as the German military pistol through both world wars. Captured examples became popular souvenirs and many British servicemen in both wars preferred it to their issue pistols. It soldiered on in unexpected places after World War II, with French soldiers in Indochina and Algeria, and both Portuguese troops and communist-backed guerrillas in Africa in the 1960s. The final examples remained in Norwegian service until the 1980s. The Luger's iconic status saw it return to production in the 1970s, for sale in the collector's market.

Tactically, long-barrelled versions served as early submachine-gun equivalents in the trench fighting of World War I, equipped with shoulder stocks and high-capacity drum magazines. Technically, the Luger family spawned two of the most prolific military pistol cartridges of the century, used in almost every Western and Soviet submachine gun.

The Luger story is full of unexpected quirks. The weapon is usually regarded as a quintessentially German pistol, but was actually first adopted by the Swiss, and considered as a potential service pistol by both Britain and the USA. Its users would rarely have called it a 'Luger'. It was the Pistole 08 (P 08) to German soldiers, while its manufacturer called it the 'Parabellum', from the Latin *Si vis pacem, para bellum* ('If you want peace, prepare for war') which formed the company motto and telegraphic address. The Luger name was actually popularized by the US importer, and the pistols produced in the 1970s could not legally be called 'Lugers' in the United States, as the importer still held that trademark and was



The Luger was the main pistol of the German armed forces for 40 years, in three main variants: the Pistole 08 (1) with 100mm barrel and fixed sights; the Navy's Pistole 04 (2) with 150mm barrel and two-position rear sights; and the Lange Pistole 08 (3) with 200mm barrel and sights adjustable to 800m. These examples are from the Small Arms School Collection.

using it to sell pistols of their own design. This book uses 'Luger' rather than the more strictly correct 'Parabellum', however, as the former is more familiar to English-speaking readers.

The Luger has spawned a significant literature, and a book of this length can only be an introduction. It focuses on the technical development of the pistol and its practical use in combat, rather than on proof marks and manufacturer codes, beloved of collectors but with little practical effect. Its primary emphasis is placed upon German Lugers, which formed the majority of production, but it does discuss significant foreign users. It cannot cover every detail or variation, but those seeking more information will find further sources in the Bibliography.



Two soldiers with P 08s and stick grenades storm out of a bunker on the Western Front, 1939. The picture is part of a long series of posed propaganda photos in which the photographer made the men rush out of the door over and over until he was satisfied with the result. The man on the right has improvised a lanyard for his pistol. (Bundesarchiv, Bild 101-048-1119-26 / photo: Schweizer)



DEVELOPMENT

The first semi-automatic pistols

ORIGINS

The Luger's immediate ancestor – the Borchardt C93 – was the first semi-automatic pistol to enter production, but numerous other semi-automatics arrived shortly afterwards. These competing designs all appeared at the end of the 19th century due to radical innovation in firearms technology over the previous 50 years.

Typical military pistols in 1840 were single-shot black-powder weapons firing large-calibre lead balls, essentially unchanged from the Napoleonic period. Most were smoothbore muzzle-loaders. The accuracy advantages of rifling were well understood, but loading a ball down the grooves of a rifled barrel took much longer than a smoothbore, and because pistols were short-ranged weapons, the extra cost was rarely seen as worthwhile. Percussion caps – thin metal cases containing fulminate of mercury which detonated when struck – had been available for some time, but were now entering general military use. Initially, they simply replaced the flint in a conventional flintlock pistol – indeed, many existing flintlocks were converted to use caps instead. The caps reduced the frequency of misfires – often around 10 per cent with flintlocks – and improved accuracy by reducing the delay (so-called 'lock time') between pulling the trigger and the weapon firing. The full potential of percussion caps was realized when the first practical revolvers appeared in the 1840s. These had cylinders with five or six chambers loaded with powder and ball and with nipples for percussion caps at the rear. A new chamber rotated into line with the barrel for firing each time the hammer was pulled back to cock the weapon.

The new revolvers had rifled barrels, because the charge was loaded into the cylinder directly rather than forced down the barrel, making them more accurate than the old pistols. They gave a single man unprecedented

firepower, as their use in the American Civil War (1861–65) showed. Loading each chamber separately with powder, ball and percussion cap made reloading these cap-and-ball revolvers in action unfeasible, however. American cavalrymen often carried several pistols, but there were clearly practical limits to this.

The next improvement was to encase bullet, propellant and percussion cap in a brass cartridge. This had several advantages. First, the rigid metallic cartridge case protected its contents from moisture or damage, allowing cartridges to be held in magazines and withstand handling by the action of repeating weapons. Second, detonation of the propellant expanded the ductile brass case to fill the chamber completely, eliminating the gas-leakage problems that dogged early bolt-action rifles such as the Dreyse. Third, metallic cases prevented overheating as the brass case absorbed most of the heat from the propellant detonating, and expelled it with the spent case. Excessive chamber heating only really became a problem with fully automatic weapons, however, rather than pistols. Metallic cartridges allowed the creation of practical bolt- or lever-action repeaters such as the American Winchester and the German Mauser Gewehr 71/84, while some revolvers introduced swing-out cylinder or break-open designs that allowed faster, easier reloading.

One more improvement was required before semi-automatic pistols became practical weapons. Early metallic cartridges were still loaded with conventional 'black powder'. This was a 'low explosive' of limited power, which produced large amounts of smoke and carbon fouling when fired. This high level of fouling was tolerable – if undesirable – in revolvers, as their actions were manually operated by the firer, and were thus relatively robust. By contrast, a semi-automatic pistol's more sensitive action quickly became unreliable as fouling built up. The answer came in 1884, when French chemist Paul Vieille invented the first successful smokeless powder. Called *poudre blanche* or 'white powder', to distinguish it from standard 'black powder', this was a stabilized form of the high-explosive



The 10.6mm black-powder Reichsrevolver 79 (above) and Reichsrevolver 83 (below) were old-fashioned even when adopted, but shortage of more modern weapons would keep them in service with Germany's artillery and rear-echelon troops until the end of World War I.

nitrocellulose. It produced almost three times more power than the same weight of black powder, would burn when wet, and produced little smoke and far less fouling. This cleaner-burning smokeless powder made semi-automatic pistols viable. Its greater power also allowed a change from traditional large-calibre pistol balls, fired at relatively low velocity, to smaller bullets fired at much higher velocity. Higher velocity meant a flatter trajectory, because the shorter flight time to the target meant gravity had less time to act on the bullet, and thus better range and accuracy. Because less of Vieille's powder was needed to deliver the same energy, the new cartridges could be significantly shorter than their black-powder predecessors. This made putting a magazine in the grip of a pistol possible, though designers were surprisingly slow to take advantage of this.

Smokeless powder made semi-automatic pistols possible, but they still had to be created. The simplest design used expanding propellant gas from the fired cartridge to drive an unlocked breechblock rearwards, compressing a return spring. The spent cartridge was ejected as the breechblock reached the limit of rearward travel. The compressed return spring then sent the breechblock forward again, stripping the next round off the magazine and chambering it. The breechblock's rearward travel had to take long enough to ensure the bullet left the muzzle before the spent cartridge was ejected, or high-pressure propellant gas trapped in the barrel behind the bullet would vent through the ejection port, endangering the firer. More powerful cartridges pushed the breechblock back faster, while using heavier breechblocks or stronger springs slowed the action down again. Limits on how heavy a pistol breechblock could be, and how powerful a return spring it could use, meant this 'simple blowback' mechanism was only suitable for pocket pistols firing low-powered cartridges, however. More powerful military pistol rounds needed locking mechanisms to keep the breech closed until pressure dropped to safe levels, but then unlock the action for the residual pressure to eject the spent case and load a new round.

THE BORCHARDT C93

The first successful semi-automatic pistol design was created by Hugo Borchardt, who was born in Saxony in 1844, but emigrated to the United States as a young man, becoming a naturalized US citizen. Borchardt gained considerable experience of firearms design in the United States, working for Colt and later Winchester and Sharps. He designed several revolver prototypes for Winchester in 1876–77, which survive in the company's museum. Unfortunately, Winchester seems to have regarded its pistol designs as bargaining chips to keep Colt out of the repeating rifle market – while Colt did not make rifles, Winchester would not make pistols. Borchardt's revolver designs were thus never exploited. Whether or not Borchardt was disappointed by this, he was back in Europe by 1881, though he returned to the United States later as a consultant to Remington. More importantly, in 1893 he designed a pistol for the German arms manufacturer Ludwig Loewe & Co.



The Borchardt pistol used a toggle-locked breech. This had a two-piece linkage, hinged in the middle like a knee joint, and attached to the rear of the breechblock. Although it required high-quality machining, the toggle lock was both strong and reliable, and easily able to handle powerful rounds.

The Borchardt pistol also fed from a detachable box magazine in the pistol grip. This seems an obvious design today, but was revolutionary at the time. Putting the magazine into the grip rather than ahead of it shortened the weapon by several centimetres, improved the balance of the pistol, and – because one hand will always find the other – it made reloading more intuitive in poor light. Despite this, most other designers continued to place pistol magazines ahead of the grip for some time. Other early semi-automatics were charger loaded, requiring the firer to place a charger of rounds into a guide above the open breech and slide the rounds down into a fixed internal magazine, as with a bolt-action rifle. Using box magazines allowed faster reloading and gave better protection to the rounds. Again, however, detachable magazines did not become standard on other pistols until a decade later.

Revolver rounds used a rim around the cartridge base to locate themselves in the cylinder, but did not feed well in a box magazine. The Borchardt used a 7.65×25mm bottleneck cartridge case, with a groove around the base creating a ‘rim’ for the extractor to grip without protruding past the sides of the case itself. This cartridge – designed by Georg Luger – would ultimately prove to be as influential as the pistol itself.

Borchardt supplied his pistol with a wooden shoulder stock which attached to the rear of the frame, turning the weapon into a semi-automatic carbine. Response to the new weapon was very positive. The *Boston Herald* newspaper of 22 November 1894 noted ‘The naval small arms board had exhibited before it today a pistol which is quite likely to revolutionize this sort of equipment in the armies and navies of the world’. The Borchardt had problems, however. It used a clock-type mainspring, which required a large housing protruding far behind the grip. The spring also needed to be carefully balanced to the cartridge used, and could function erratically with different batches of ammunition. The grip was set awkwardly at right angles to the barrel, leading to poor pointability. Overall, the pistol was long, heavy and poorly balanced. More importantly, the mechanism was complex and difficult to strip and

This Borchardt from the Small Arms School Collection is shown with its wooden stock and attached holster. Note the vertical grip angle and large rear overhang. When the pistol fired, the two pieces of the toggle were in a straight line, and both barrel and toggle initially moved backwards together. At a set distance, an internal roller caused the hinge joint to break upwards, pulling the breechblock away from the rear of the barrel and ejecting the spent case. The spring then sent the breechblock forward again, chambering the next round. The system resembled that of the well-proven Maxim machine gun, except that the Maxim toggle breaks downwards into the body of the gun. Because the pistol lacked sufficient internal space for this to occur, Borchardt inverted the mechanism to break upwards.

reassemble for maintenance even in ideal conditions, let alone in the field. In consequence, while Borchardt's pistol attracted much interest, no army seriously considered adopting it. The exact number produced is unknown, but the highest known serial number is 3013, so fewer than 3,500 seems likely.

THE BORCHARDT-LUGER

The Borchardt C93 was the first viable semi-automatic pistol, but it was quickly joined by others of varying quality. Most notably, the Mauser C96 'Broomhandle' appeared shortly after, also chambered for the Luger-developed Borchardt cartridge but with a more powerful propellant loading. The C96 had a rifle-style charger-loaded fixed magazine ahead of the grip, but it was a well-made gun, although early versions had reliability problems, and it benefited from Mauser's strong reputation. The Borchardt needed improvement to remain competitive, but Borchardt was apparently reluctant to do so. Possibly he felt it was already perfect, or he did not understand practical battlefield realities. He may simply have been working on other projects, being involved with designing gas-heating and -lighting appliances at the time.

Ludwig Loewe & Co had merged with several other arms firms to create Deutsche Waffen- und Munitionsfabriken ('German Weapons and Ammunition Factories', or DWM) which asked Georg Luger – who designed the Borchardt's cartridge – to improve the pistol. A former Austrian Army officer and an excellent marksman, Luger spoke several languages fluently. He joined Ludwig Loewe & Co in 1891 as both an engineer and a salesman, demonstrating products to potential customers. These experiences gave him a more practical understanding of what was required of service weapons, and he was improving an existing product, rather than starting from scratch. These improvements were made at different stages during the Swiss pistol trials outlined below, but are drawn together here for clarity.

The clock-type mainspring was an obvious weak point. Luger replaced it with a leaf-type mainspring, placed in the back of the grip. This did away with the complex and troublesome adjustments previously required and simplified maintenance. It also removed the large rear overhang, reducing the Borchardt's length and weight while improving balance. The internal roller to break the toggle lock was replaced by ramps machined into the exterior of the frame, a much simpler and stronger design. When the toggle drums hit these ramps, they automatically cammed upwards, breaking the toggle joint. Luger shortened his original 7.65×25mm ammunition design to 7.65×21mm, creating the 7.65mm Parabellum cartridge. Because the pistol's action must take the round at least its own length to the rear to eject it, a shorter round meant a shorter action, thus reducing overall length. The shorter rounds also allowed Luger to accommodate the new spring in the grip and still change the vertical grip of the Borchardt to one raked backward at 55 degrees, an ideal angle for natural pointability.

OPPOSITE

The early years of the 20th century saw a flood of semi-automatic pistols, many of which competed against the Parabellum in various military trials. From top to bottom, we have the Mannlicher 1901, the Roth-Steyr, the Bergmann 1897, the Mannlicher 1903, the Bergmann 1896 and the Colt 1902, all from the Small Arms School Collection.



SWISS TRIALS

In June 1897, the Swiss military began trials to find a new self-loading service pistol. The Swiss had tested the Bergmann 1894 and Mannlicher 1894 in 1895 and it was felt nothing would be gained by testing them again, so only the Borchardt C93 and Mauser C96 were tested. The pistol currently in Swiss service, the 7.5mm Ordonnanzrevolver 1882, was to act as a control benchmark, but would not itself be tested. Georg Luger demonstrated the Borchardt C93, impressing the committee with its powerful high-velocity cartridge. Even so, the Borchardt C93's excessive size and poor balance meant it was not considered suitable to replace the issue revolver. Fitted with its shoulder stock, the Borchardt C93 was considered as a possible light carbine for the cavalry, but was let down by its complexity and (again) its poor balance. The Mauser C96 was similarly felt to be too big and complex.

After these trials results, DWM submitted an 'improved' Borchardt, with the recoil spring now located in the grip. This was tried against the Bergmann and Mannlicher in October 1897, but despite notable reductions in size and weight, it was still considered too big and too heavy. The Swiss scheduled new trials for October 1898, before a larger panel. Six pistols were submitted – the Bergmann 1897 (with locked breech) and 1898 (with unlocked breech), the Mannlicher 1897, the Roth, an improved Mauser C96 and an improved Borchardt pistol. Importantly, the Swiss agreed to DWM's request to replace the company's entry with a pair of 'Borchardt-Lugers' chambered for 7.65mm Parabellum in November 1898, before firing trials started. One of the Borchardt-Lugers was fitted with a long barrel, the other with a short barrel, and they were accompanied by a detachable 'holster-stock'.

The firing trials consisted of two rapid-fire tests (50 rounds each), an accuracy test (50 rounds at 50m), an endurance test (400 rounds in succession, without cleaning) and water and dust tests. The Borchardt-Lugers suffered very few jams or misfires, and were the most accurate of the guns submitted for the trials. The commission reported very positively, believing that the Borchardt-Lugers were undoubtedly the best of those pistols tested. The commission's second preference was the Mannlicher, although it had technically scored third, behind the Roth. Both of these pistols lost marks due to being charger loaded, while the Mannlicher's magazine was positioned ahead of the trigger rather than in the grip, and the Roth's safety features were deemed inadequate. The Bergmann pistols and the Mauser C96 failed to meet the minimum standards during the trials, and were eliminated.

A final round of trials was scheduled for May 1899, with a prize of 5,000 Swiss francs for the winning inventor. DWM submitted a pair of improved Borchardt-Lugers, in two barrel lengths. They were fitted with manual safety catches in addition to an improved grip safety, as suggested by the previous commission. The breechblocks were redesigned for smoother operation, and lightening cuts were machined into the frame to reduce weight. These pistols were easily superior to an improved Mannlicher also in the trials, while the Roth and Mauser weapons were excluded from further testing as they had not been improved since the previous trials.

Swiss Lugers

The Ordonnanzpistole 1900 was a 7.65mm weapon with a 120mm barrel, leaf-type mainspring and grip safety, produced for the Swiss by DWM. It was replaced in 1906 by the Modell 1900/06, which incorporated the 'New Model' improvements made by DWM since the original Swiss adoption. These included replacing the old leaf-type mainspring with the newer and stronger coil mainspring, adding the new 'chamber loaded' indicator and minor improvements to toggle grips, firing pin and extractor. Deliveries stopped abruptly with the outbreak of war in 1914, as DWM was fully committed supplying the German Army. The Swiss therefore investigated the possibility of manufacturing the pistol themselves at Waffenfabrik Bern. In the event, the time required to build a production line meant that the first Swiss-produced pistols were delivered in October 1918, just a month before World War I ended, and did not appear in volume until later.

The Swiss-made pistols are generally known to collectors as '06 W + F' models, with the Swiss cross between the letters. They differed from DWM-made examples only in cosmetic details such as markings and grip chequering. The 06 W + F remained in production until 1933, but the Swiss felt it was expensive at 235 Swiss francs

per pistol, almost twice the 120 Swiss francs price of the old Ordonnanzrevolver 1882. The 06 W + F was redesigned in 1928 to simplify it and thus reduce costs, resulting in the Modell 06/29. This eliminated unnecessary machining of the frame and receiver ring, simplified the trigger and grip safety, replaced the grip plates and magazine base with cheaper plastic and reduced the three magazines issued with each pistol to two. Overall, these small changes added to cost savings of around 30 per cent, for a unit price of 160 Swiss francs. Some of the production run was earmarked for commercial sale, profits from which helped to defray costs still further. In the event, DWM's sales suffered badly during the Depression years, and the company offered to supply 10,000 new Modell 1900/06 pistols at a bargain price of only 132 Swiss francs each. The Swiss preferred to pay slightly more per pistol and keep the money in Switzerland, however. Production of the Modell 06/29 began in 1933 and continued until 1947. The blueprints, tools and gauges were later purchased by Mauser, as part of that company's plan to resume Luger production. A few were converted to 9mm for testing after World War II, but were beaten by the 9mm SIG, which replaced the Modell 06/29 in Swiss service from 1949.



The value-engineered 7.65mm Swiss Modell 06/29. Note the straight grip front, long grip safety panel and stepped receiver front. The author found this example to have a notably crisp trigger pull.

In late 1899, 20 pistols were issued to Swiss personnel for field testing, with a request to DWM to reduce the weapon's weight below 850g without the magazine if possible. The field tests went well, and DWM revised and lightened the pistol to bring weight down to 835g. The pistol was thus adopted as the Ordonnanzpistole 1900, making Switzerland's army the first to adopt the Luger.

BRITISH TRIALS

The British Small Arms Committee (SAC) arranged trials of 'Borchardt' pistols (actually Borchardt-Lugers) via Vickers, DWM's British agent. Six pistols were delivered in October 1900, with 3,000 rounds of ammunition. These were effectively pre-production models of the Swiss Ordonnanzpistole 1900, with both grip and manual safeties. Overall, the British reaction to the pistol was very positive, with an SAC minute (299, 12 December 1900) noting:

The pistol is well made, is of good design, and handles comfortably ... An important advantage that this pistol possesses over the others mentioned above is the fact, when the eight rounds contained in the magazine have been fired, the magazine can be replaced by a full one and fire resumed in four or five seconds ... this is a good serviceable weapon, and is much to be preferred to any of the other revolvers or automatic pistols we have had for trial.

By comparison, the SAC found the Mauser C96 to be unreliable, with poor feeding and safety issues. The stumbling block was the Borchardt-Luger's 'stopping power'. Victorian colonial wars had brought Britain into conflict with various opponents fired by drugs or religion, often believed to possess a disconcerting tendency to keep coming forward after being shot with light bullets. This had led the British to adopt the powerful .455in Webley revolver in 1887, and made them distrust small-calibre 7.65mm rounds as ineffectual 'man-stoppers'. No objective test of 'stopping power' existed. Penetration tests were conducted by firing various weapons at ½in (13mm) wooden boards spaced 1in (25mm) apart, and counting how many boards the rounds penetrated. The Borchardt-Luger's high-velocity round penetrated an average of 14–15 softwood boards, considerably better than the nine penetrated by the .455 Webley, and far ahead of the 5–7 boards penetrated by the Roth and Steyr semi-automatics.

Even so, everyone accepted that penetration of wooden boards was a poor proxy for the bullets' wounding effect against humans. Indeed, the Borchardt-Luger's excellent penetration was partly because its hard-jacketed



Swiss 1899 prototype SN 26 in 7.65mm, later supplied to the British Small Arms Committee for their 1900 trials and still part of the Royal Armouries' Pattern Room collection. Note the bordered grips, cutaway toggles, grip safety and lack of a stock lug. (© Royal Armouries PR.2074)

bullet deformed relatively little on impact, and thus gave up less of its energy than the softer Webley bullet. This was good when shooting pine boards, but when such a bullet struck a human, it might simply pass straight through without giving up much energy – what was later termed a ‘shoot through’. To understand how pistol bullets behaved in the real world, the British fired bullets into two live sheep and a bullock, with a doctor from the Royal Army Medical Corps on hand to examine the resulting wounds. Equally, a report from the School of Musketry noted that ‘stopping power’ was as much about the number of effective hits on the target as about the damage each hit inflicted. They felt that the Luger proved more accurate than the Webley at 20yd (18m) and better for rapid fire due to the semi-automatic’s light recoil. They found that a man could fire two complete magazines (16 rounds) accurately from the Luger in the same time as it took to fire six shots from a Webley and then reload, and felt that the German pistol’s rapidity of fire might well compensate for its lesser stopping power.

Ultimately, the SAC felt bullets of at least .40in (10mm) were essential, and even the 1902 offer of new 9mm Lugers for test in January 1903 did not interest them. Instead, the SAC became enmeshed with the Gabbett-Fairfax ‘Mars’ pistol, which certainly had stopping power, but was big, heavy, complex and notoriously unpleasant to fire. In September 1911, Vickers submitted a P 08-type Luger to the Director-General of Ordnance. An initial report noted the improvements over the Lugers previously tested and that it seemed admirably suited to service requirements, suggesting comparative trials. No further action was taken, however.

US TRIALS

The US Board of Ordnance and Fortification tested a Borchardt pistol in October 1897, found it ‘highly satisfactory’ and recommended further testing. No funds were available, however, and nothing further was done until March 1901, when they tested two 7.65mm 1900-pattern Lugers obtained via DWM’s US agent, Hans Tauscher.

The tests started with stripping and reassembly (which Tauscher conducted with impressive speed and smoothness), followed by accuracy tests, at which the Luger performed predictably well, even when fired by men unfamiliar with it. Endurance tests totalling 1,734 rounds followed, which the pistol completed with only 33 misfires and jams, mostly at the start – the pistol had not been oiled or cleaned since arriving in the United States, and the previous handling and stripping phases had removed most of the residual lubricant. Tauscher lightly oiled the gun and adjusted the striker after 500 rounds, after which only six misfires occurred in the next 500 rounds, and none in the final 734 rounds, though the hold-open catch failed due to wear and had to be removed. The Luger passed a dust test easily, but the rust test caused problems: 24 hours in a steam chamber left the outside of the pistol thoroughly rusted and the mechanism was very stiff, failing to eject the ten test rounds. It was freed up by a light application of oil, after which it fired 78 rounds without problems. A final test using cartridges with deliberately reduced propellant charges caused

no trouble – an interesting finding, considering later criticism of the Luger’s supposed sensitivity to ammunition.

Based on these encouraging results, the Board recommended purchasing 1,000 7.65mm pistols and 200,000 rounds of ammunition for large-scale troop trials, at a cost of \$15,000. Holsters were made at Rock Island Arsenal, and the pistols were issued in February–March 1902 to the following: the US Military Academy, West Point (ten pistols); the Presidio, San Francisco (15 pistols); Fort Hamilton, Brooklyn (ten pistols); Fort Riley, Kansas (40 pistols); plus five pistols to each of the 105 cavalry troops. (Note that this should mean the cavalry troops received 525 pistols in total, but some sources note the cavalry received 625 in total.) The results of this field trial were not encouraging. The Luger was preferred to other self-loading pistols, but most units preferred to retain heavier-calibre revolvers, perhaps as a result of experiences during the Moro Rebellion (1899–1913) in the Philippines, which the United States had gained from Spain following the Spanish–American War. The pistols were recalled to Springfield Armory in 1905, and most were sold at auction in 1906 to gun dealer Francis Bannerman, who resold them retail. The new 9mm Luger became available during this test, and the Board of Ordnance and Fortification asked to exchange 50 of the original 7.65mm pistols for new 9mm weapons. DWM agreed, and delivered the 9mm pistols to Springfield Armory, where they were fitted with ‘Powell’s Cartridge Indicating Device’, consisting of a slot cut in the left grip, covered by a transparent celluloid window which allowed vision while preventing dirt entering. A pin attached to the magazine follower indicated how many cartridges remained. These 9mm pistols did not affect the results of the test, however.

The US Army had found that the .38in Long Colt revolvers carried by some of its troops did not reliably stop sword-armed Muslim Moro *Juramentado* (‘Oathtaker’) suicide attackers during the Moro Rebellion. The 1904 Thompson–LaGarde tests to determine the optimal handgun calibre saw various weapons – including 7.65mm and 9mm Lugers – fired into live cattle and horses at a Chicago stockyard. Suspended human cadavers were also shot from various distances with the same weapons, with the swing imparted by each impact used to measure the energy transferred by the bullet. Despite significant variation due to shot placement and between animals, the tests concluded that any future pistol should be least .45in calibre.

The Board of Ordnance and Fortification therefore decided that all pistols considered for the next trials in October 1906 should fire the .45in M1906 round. (Despite what is sometimes assumed, this was not the famous .45 ACP, but an earlier and slightly longer cartridge which was later developed into .45 ACP.) The trials were slightly delayed to allow more designs to enter, then again when Georg Luger’s .45-calibre Luger design was delayed beyond the revised December 1906 deadline by Luger’s illness. The Board’s willingness to delay the trials to permit Luger’s entry probably reflected their positive impressions of his design from the previous trials, and argues against suggestions that the trial unfairly favoured US-made pistols and/or the Colt company in particular.

Trials began in March 1907. The Glisenti, Schouboe and Roth entries were excluded immediately as they did not take the specified cartridge,

The 'New Model' and short frame changes

The original Parabellum of 1900 (later dubbed the 'Old Model') was undoubtedly the best semi-automatic of its day, but still had problems. The breech closure was not always sufficiently positive, some small parts such as the thin spring-steel extractor were prone to breakage and there was no obvious way to tell whether a round was chambered or not. A revised 'New Model' appeared in 1906, with the more dependable coil mainspring replacing the original leaf-type mainspring to give more positive closure of the action, and a more robust extractor. The extractor protruded from the frame top when a cartridge was chambered, and had 'GELADEN' ('loaded') inscribed on the left side, acting as a visual and tactile indicator. The New Model also featured a wider trigger and flat toggle knobs (rather than those of the Old Model type, which were dished toward the rear), and omitted the anti-bounce lock from the right toggle grip. The latter supposedly prevented the breechblock bouncing back from the chamber face at the end of the return stroke in toggle-locked machine guns, but proved unnecessary with lighter pistol components. A new shorter frame (129mm versus 131mm) had been introduced a few years earlier. The long and short frames overlapped the change to the New Model and also to the new 9mm calibre becoming available. The small number of Old Model pistols produced in 9mm between that

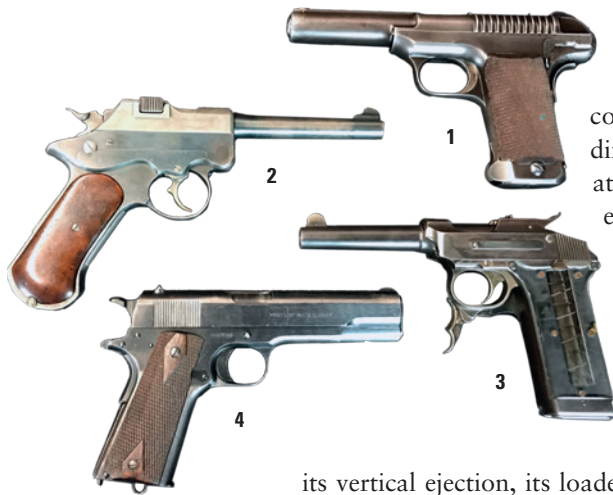
cartridge appearing in 1904 and the release of the 'New Model' in 1906 might have either frame, but most New Models have the short frame.



A pair of 'American Eagle' 7.65mm commercial pistols (see pages 70–71) showing differences between the 1900 'Old Model' (above) and the 1906 'New Model' (below). (© Royal Armouries PR.10774 and PR.4132)

leaving ten designs. Two revolvers from Colt and Smith & Wesson were rejected because they were very similar to the current issue weapons and the Board preferred the rate of fire and quicker loading of a self-loader. The Board found the Webley-Fosbery 'automatic revolver' (which used recoil energy to rotate the cylinder and recock itself after each shot) to be technically interesting but too heavy and complex, and as slow to reload as a revolver. The two semi-automatic pistols (one single-action, one double-action) submitted by US inventor William Knoble were rejected as being so crudely manufactured as to be unusable. Another semi-automatic design from a US inventor, the White-Merrill, was also rejected as inadequate and poorly developed. The Board did not favour the design of the Bergmann pistol – a modified M1906 – presumably because of its rather clumsy layout, with the magazine ahead of the trigger. Worse, the specially made ammunition sent with it was impounded by US Customs. The Bergmann proved incapable of firing standard US-supplied ammunition, suffering 13 misfires in 20 shots, apparently because its hammer strike was too weak to detonate the less sensitive US primers.

This left three serious contenders – the Savage, the Luger and the Colt. The Savage was an unusual design locked by a rotating barrel. The committee liked its simplicity, but there was no automatic safety or loaded-chamber indicator and its grip (holding eight rounds rather than the seven held by the Colt and Luger designs) was uncomfortably thick. The Colt used John Browning's long-tested dropping-link design. It lacked



Three of the competitors in the 1907 US pistol trials – the Savage 1907 (1), Knobler double-action (2) and White-Merrill (3) – and a Colt 1911 (4). The last-named pistol was not a competitor, but developed from the Colt entry. (Courtesy Forgotten Weapons)

an automatic safety or loaded-chamber indicator and needed two hands to withdraw spent magazines, and the committee disliked its lateral ejection. It differed significantly from the later Colt 1911 at this point, with several features (such as an excessively vertical grip) that were rectified as a result of these trials. The Luger entry was a New Model-style prototype with a 127mm barrel, hand built because the .45-calibre (11.43mm) cartridge was too big to modify existing components to accept. The committee felt that the Luger's grip angle made shooting easy; they liked its vertical ejection, its loaded-chamber indicator and its automatic and manual safeties, but felt the breech closure was insufficiently positive.

All three pistols underwent rapid-fire, penetration and accuracy tests, followed by dust and rust tests. Unsurprisingly, the Luger was the most accurate of the pistols tested, and did well enough on the endurance tests, with most of the 14 stoppages in 641 rounds being due to the inconsistent government-supplied ammunition. Equally unsurprisingly, it did less well on the dust and rust tests, after which rounds had to be manually cycled through the action, though it functioned normally again after light external oiling. None of the three pistols was a clear winner, but the Colt had functioned somewhat more dependably than the others. The Board recommended awarding Colt and Savage contracts for 200 pistols each for large-scale testing, and that the Luger design not be taken forward. Savage declined the order, however, and the Board offered DWM a contract to produce 200 .45in Lugers for further testing against the Colt, at \$48.75 each including two spare magazines and tools. After consideration, DWM also declined the order, and withdrew from the competition. After all, the US Army of the time was very small, and no-one could anticipate the vast expansion that would come during the two world wars. Moreover, it was clear from previous tests that the .45 Luger was unlikely to win, and the contract was being offered largely to provide a competitor for the Colt. Hand-building 200 pistols would be labour intensive and offered little profit, so DWM probably felt they would do better concentrating on the much larger German Army contract also on offer.

Savage later had a change of mind and accepted the contract for 200 further pistols, but neither these nor the Colt in its original form satisfied the Board, which suggested various improvements. The revised Colt design ultimately won, incorporating several features the Board had praised on the Luger, including the raked pistol grip and a grip safety.

It is often assumed that two .45-calibre Lugers were submitted for the US trials, based on an assumed surviving pistol being numbered '2', but the trial report itself refers only to one pistol. In fact, two .45 ACP Parabellums survive, and are often assumed to be pistols from the 1907 trial. The trials pistol was chambered for the .45 M1906 cartridge, though, not .45 ACP. Moreover, there are noticeable differences between these two pistols, and

between each of them and photographs of the trials pistol. As the pistols lack provenance (one is unproofed, the other has post-1912 DWM proofs), the most likely assumption is that they are tool-room pieces produced during development of the US trial pistol and re-barrelled to the .45 ACP cartridge at a later date, but this must remain speculation.



GERMAN TRIALS

Although Swiss adoption was an important landmark for the Luger, and adoption by the relatively small professional armies of Britain and the United States would have brought prestige, the real profits for DWM would obviously come from the Luger's adoption by the huge conscript armies of France and Germany. The French Army actually trialled the Luger in 1904, but ill-feeling from the Franco-Prussian War (1870–71) made it unlikely France would ever adopt a German handgun, and DWM did not pursue the trials very strongly. The Prussian GPK (*Gewehr-Prüfungskommission* or Rifle Testing Commission) experimented with mechanical self-loaders from 1891, and procurement of revolvers was suspended while the various available repeaters were examined. During 1894–96 the GPK examined the Mieg and the Schlegelmilch/Spandau M1896 (neither of which impressed them), the Borchardt C93 (which they felt was too big, too heavy and too clumsy) and the Mauser C96. The Mauser was the initial favourite, partly as a result of Mauser's reputation, though the C96 was designed by the Feederle brothers rather than Paul Mauser himself. The commission also liked its ability to be stripped without tools. The initial test pistols suffered from frequent cartridge jams, however.

Despite this, 145 C96 pistols were ordered for field trials beginning in 1898. The results convinced the GPK that semi-automatic pistols were better than the outdated revolvers currently in service, as the new weapons were quicker to load, more accurate, more powerful and had a flatter trajectory. The Mauser suffered from too many jams and malfunctions to be accepted as it stood, however. Further field tests followed in 1899–1901, with Prussia purchasing another 124 C96 pistols and the nominally independent German state of Württemberg purchasing 48, while Saxony and Bavaria awaited the outcome. The results were notably poor, and the GPK recommended against adoption of the C96.

By this point, a new design had appeared from Mannlicher, while DWM had submitted 7.65mm Lugers from the Swiss trials. By August 1901 the Mannlicher was dismissed as unsuitable for military service, while the GPK continued testing both the Luger and new versions of the C96, modified to resolve its reliability problems. The Luger increasingly became the preferred choice, because it was lighter, handier and more reliable than the Mauser. The GPK were concerned about the stopping power of the 7.65×21mm

The hand-built .45-calibre Luger pistol from the US tests, as pictured in the official report. The gun does not survive, and differs from both known surviving .45 ACP Lugers.

cartridge, however, and asked whether the Luger could be converted to use the more powerful 7.63×25mm Mauser cartridge – ironic, because the latter was essentially the original Borchardt cartridge. They were also concerned about the difficulty in seeing the Luger’s cocking status, and its complexity, leading to the elimination of the grip safety, toggle anti-bounce lock and hold-open to reduce the number of parts.

A third set of field trials began in July 1902 with 55 improved C96 pistols (in both six- and ten-shot versions), the same number of Lugers (15 with grip safeties, the rest without), and 15 examples of the Mannlicher M1901, the latter tested only for suitability for private purchase by officers. By December 1903, the GPK reported the Luger was the best of the submissions, though it lacked a chamber-loaded indicator and occasionally failed to close satisfactorily. The German authorities asked Georg Luger to resolve these issues and improve the pistol’s stopping power in February 1904, though some work had clearly already been done at DWM, as 1902 British SAC minutes note a 9mm Luger being promised by January 1903.

The first 9mm pistols were submitted to the GPK (and the US trials) in 1904. The 7.65mm Parabellum was a bottleneck cartridge, and if the case neck was fully opened out, it could accept a 9mm bullet. Because the case base diameter remained the same, in theory no changes to the pistol were required except for a new 9mm barrel. Revolver cartridges use their rim to seat themselves in the chamber, with the primer in the base positioned for striking by the pistol’s hammer. Semi-automatic pistol cartridges are rimless in order to feed smoothly from the magazine, however, so the bottleneck 7.65mm Borchardt and Parabellum cartridges used the case shoulder to position themselves instead. This was no longer possible with a straight-sided cartridge, so Luger’s original 9mm round had a very slight shoulder. This was soon replaced by the familiar straight-sided version, which indexed by holding the case rim against a slight step in the chamber. The new bullet had 38 per cent more cross-sectional area and weight, almost the same velocity and was given a flat nose, believed to enhance hitting power.

Less obviously, a stronger and more reliable coil spring replaced the leaf-type mainspring in the rear of the grip, giving more positive breech closure, and parts such as the extractor which had proved fragile were replaced with stronger equivalents. The Parabellum’s hammerless design made it difficult to see whether a cartridge was loaded or not, so the new extractor incorporated a chamber-loaded indicator, which protruded above the breech when the pistol was loaded. This could be felt even in darkness and had the word ‘GELADEN’ (‘loaded’) engraved on the left side.

After these changes, the GPK reported in June 1904 that the Luger had been improved sufficiently to allow adoption. Mauser requested a delay, however, to submit an improved pistol in a larger calibre. The German Army, as always, was happy to accommodate Mauser, and adoption of the Luger was deferred. Meanwhile, the German Navy adopted the Luger as its Selbstlade-Pistole Modell 1904, relying on the Army testing. Naval purchases were small, however, and Army adoption remained the real prize.

The revised Mauser ‘large-calibre’ (10.4mm) pistol had still not appeared in August 1905, though a new pistol from Frommer and an Italian Vitali were tested. The Army’s lack of urgency may have reflected

The German Navy's Pistolet 1904

The Army's P 08 was the most famous German Luger, but it was preceded by the Navy's Selbstlade-Pistole Modell 1904, redesignated as the Pistolet 1904 (P 04) in 1907.

Unlike the Army – which was controlled and funded by the individual German states – the Navy was under direct imperial control, and thus had fewer funding constraints. Naval vessels of the time carried considerable numbers of small arms, both because they were expected to put ashore large 'landing parties' to handle colonial incidents, and to arm boarding parties and prizes crews required for blockade enforcement and commerce raiding, which were expected to form a major part of naval operations. Typically, a battleship carried around 250 rifles and 100 pistols, while a light cruiser carried 70 rifles and 50 pistols. Even submarines carried up to 24 pistols, because they expected to engage most targets on the surface with deck guns, and use torpedoes only against enemy warships. Officers were issued with pistols only, while enlisted men were also issued flat-board shoulder stocks which attached to a lug on the pistol grip, turning the pistol into a light carbine if required.

The Army was in no hurry to adopt the Luger, as available funds were needed to complete the switch-over to the new Gewehr 98 rifle. The Navy had fewer funding constraints, and was satisfied about the 'war-worthiness' of the Parabellum based on the Army tests. Navy trials were restricted to limited 'carrying trials' to determine how the pistol should be carried, how much ammunition should be issued with each pistol and whether the grip safety was desirable.

The P 04 was chambered for the 9mm cartridge (indeed, it was the first pistol adopted in that calibre); it had a 150mm barrel and a two-position rear sight mounted on the rear link, set for ranges of 100m and 200m. It is the rarest German Luger. Some authors speculate based on serial numbers that up to 100,000 were made, but that figure is far higher than any requirement for known German naval vessels. These high estimates assume that P 04 frames were numbered in a separate series, whereas it is more likely they were numbered in the same series as other Parabellums. A total production of 30,000–40,000 seems far more likely. This fits with known German naval strength, the known purchase contracts of 8,000 pistols in 1904 (delivered in 1906) and 1916 and missing contracts for 8,000–12,000 pistols each hypothesized for 1909/10 and 1914 on the basis of actual delivery records.

The first batch of prototypes delivered (perhaps up to 1,500–2,000 guns) had leaf-type mainsprings and anti-bounce locks on the toggle, but the production pistols had newer coil mainsprings and no anti-bounce lock. The pistols delivered under the first (1906) contract had hold-opens and stock lugs (which the P 08 initially lacked) and were effectively built on commercial long Old Model

frames with a grip safety, but with the New Model extractor/loaded-chamber indicator.

Initial P 04 pistols – like previous Parabellums – were set to 'safe' by pushing the safety lever upwards, but the lever could be accidentally pushed off 'safe' while holstering the pistol. From 1912, new P 04 pistols were made 'safe' by pushing the lever downward, like the P 08, and existing guns were converted retrospectively. The grip safety was dropped from the last P 04 contract in 1916. Meanwhile, the P 08 had gained a hold-open and stock lug, and the last P 04 pistols were built on standard P 08 frames, rather than the slightly longer original Old Model-style frame, though they retained the longer barrel and special rear sight.

Aside from shipboard use, the P 04 was issued to the infantry battalions raised from naval personnel for service in Flanders during World War I, along with the standard P 08 and the Lange Pistole 08 (LP 08). Many naval pistols were lost aboard ships that were sunk in action or scuttled at Scapa Flow by their crews at the end of the war. Remaining examples often had their grip safeties removed or deactivated and the barrel and sights cut down or replaced with 100mm versions, converting them into P 08s, which became the standard German Navy pistol after the war.



A standard P 04 (below, with grip safety) and a late version built on a standard P 08 frame (above), both with the distinctive 150mm barrel and two-position rear sight on the rear toggle. The lower pistol has the special German Navy magazine with its distinctive concentric rings on the thumb grip, while the upper pistol has a standard P 08 magazine. (© Royal Armouries PR.4074 and PR.2983)

the fact of its budget having already been fully committed to the last purchases of the new Gewehr 98 rifles and MG 08 machine guns, both of which were higher priorities. In March 1907, though, the Army purchased 9mm Lugers for issue to the four experimental machine-gun detachments formed in August 1906 (see page 39). As each detachment needed 93 pistols, the total purchase was probably around 500 weapons, allowing for training and reserve pistols.

A revised Mauser pistol (perhaps the new C6, with detachable box magazine) finally arrived in the summer of 1907, along with another pistol from Frommer. Comparative tests merely confirmed the Luger's superiority, and the GPK recommended its adoption as the standard service pistol in February 1908. The order adopting the Luger as the Pistole 08 was finally signed by Kaiser Wilhelm II on 22 August 1908. The initial order was for 50,000 guns from DWM, with further orders and production at the government factory at Erfurt to complete an estimated peacetime requirement for around 170,000 guns.

CHANGES IN THE P 08 THROUGH TIME

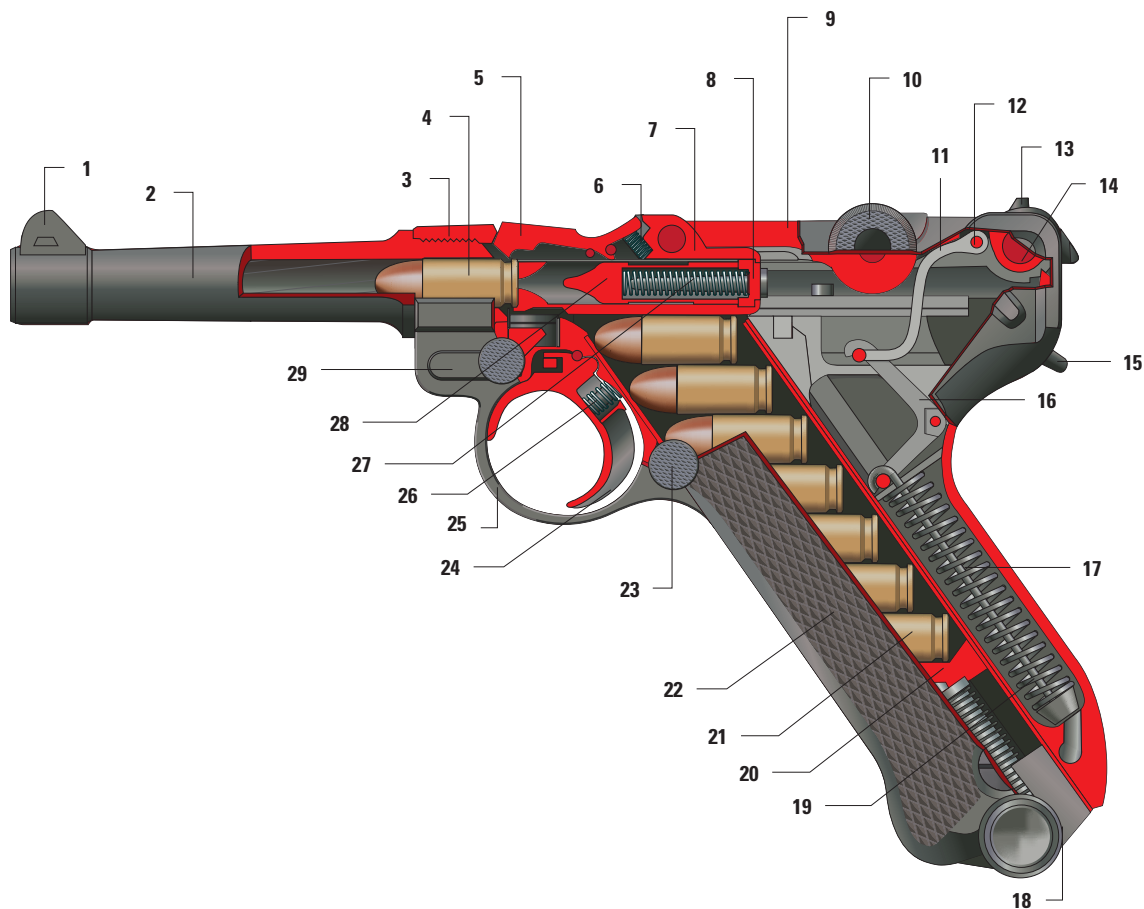
As originally adopted by the German Army in 1908, the P 08 was a 9mm pistol with a 100mm barrel, simple fixed sights and no grip safety. The first examples had no stock lug on the grip, but this was added on pistols manufactured after 1913 to standardize frames with the LP 08. Similarly, the hold-open (originally omitted to reduce the number of parts) was restored around 1914, and retrofitted to older pistols along with modified front sights. The sear bar was amended in 1916, allowing the P 08 to be cocked without removing the safety catch – a simple and sensible improvement, but one that earned Luger 10 Pfennig for each of the hundreds of thousands of pistols modified, briefly making him a wealthy man until post-war inflation made his money worthless. Finally, from the mid-1930s, Mauser and Krieghoff P 08s were manufactured with slightly thicker rear frames (the so-called 'Mauser hump') for reinforcement, along with minor modifications such as a fluted firing pin.

Minor differences in quality, machining, or dates for incorporation of modifications exist between all the factories, but had little practical effect on the pistols themselves. Grips were originally made from walnut. These were generally offcuts from rifle-stock production, and shortages forced a temporary switch to inferior beech towards the end of World War I. Krieghoff and Mauser both switched to black or brown plastic grips in the late 1930s, which were stronger, cheaper and did not swell when wet.

Pre-1918 German military and commercial pistols were finished with a rust-blueing process, repeated multiple times to produce a high-quality (but time-consuming) finish. The quality of the finish dropped during World War I, and 1920s pistols used a simpler layer-blueing process, which was quicker to produce but gave a less durable finish. Finally, 1930s pistols were usually immersion (or 'salt') blued, which was less labour intensive but more durable, varying in colour and quality according to the chemicals used.

THE LUGER EXPOSED

9×19mm Pistole 08



- 1. Front sight
- 2. Barrel
- 3. Receiver
- 4. Cartridge in chamber
- 5. Extractor
- 6. Extractor spring
- 7. Breechblock
- 8. Breechblock end piece
- 9. Front toggle link
- 10. Toggle grip

- 11. Coupling link
- 12. Coupling link pin
- 13. Rear sight
- 14. Connecting pin
- 15. Lanyard loop
- 16. Coupling link lever
- 17. Mainspring
- 18. Magazine
- 19. Magazine spring
- 20. Magazine follower

- 21. Cartridges in magazine
- 22. Grip frame
- 23. Magazine-release button
- 24. Trigger
- 25. Trigger guard
- 26. Trigger spring
- 27. Firing pin spring
- 28. Firing pin
- 29. Side-plate release catch

The Lange Pistole 08

Shoulder stocks have been produced for many pistols over the years, but only two – those designed for the Luger and the Mauser ‘Broomhandle’ – have actually been used in significant numbers. The original Borchardt design included a detachable wooden shoulder stock, and given that weapon’s unwieldiness, it might have worked better as a carbine than as a pistol. Equally, the P 04 was issued with a flat-board shoulder stock. Even so, the definitive stocked Luger was the LP 08, which was not only issued with a stock, but had several other changes to its design – notably the extended barrel and new sights – that expanded its role into new territory.

The LP 08 is sometimes called the ‘Artillery Luger’, but this term was never used by the German Army. Moreover, the LP 08 was never issued to all artillerymen, nor did they form the majority of the troops issued with it. The design originated with exercises in 1907 to find a better weapon for the field artillery, then equipped with the obsolete Reichsrevolver 79 and Reichsrevolver 83, which lacked both range and firepower. Field-artillery units ready for action used their artillery pieces as primary weapons, and had little to fear from enemy infantry in front of them. The Army envisaged relatively open battlefields in future wars, however, and was concerned whether such units could defend themselves if attacked on the line of march, or if attacked from the flanks or rear by enemy

cavalry. The Mauser Gewehr 98 rifle was impractically long for artillerymen, so the Army intended to give them shorter carbines. During the 1907 exercises, though, it was found that it was difficult for artillerymen to keep their carbines to hand while serving their guns, and as the carbines travelled in carriers attached to wagons and limbers they were almost as slow to deploy in line of march. Overall, only 31 of an artillery battery’s 136 men could sensibly be armed with carbines, leaving the rest still armed with pistols. Artillerymen also undertook less musketry practice than their infantry counterparts, and their shooting with carbines proved less effective than expected at longer ranges.

The Army investigated whether a version of the P 08 fitted with a longer barrel and P 04-style shoulder stock might offer a more effective alternative. Such a weapon could be carried in holsters by almost all the artillery battery’s men, and while it would not be as accurate as a carbine, this was offset by the higher rate of fire. The 200mm barrel selected was longer than that of the existing P 04 and the multi-position tangent sight was adjustable for range out to a rather optimistic 800m. As the weapon was intended primarily as a carbine, the sight was moved forward over the chamber, allowing more eye relief when fired from the shoulder. Although the original prototype had a hollow wooden shoulder stock/holster which completely enclosed

DUTCH TRIALS

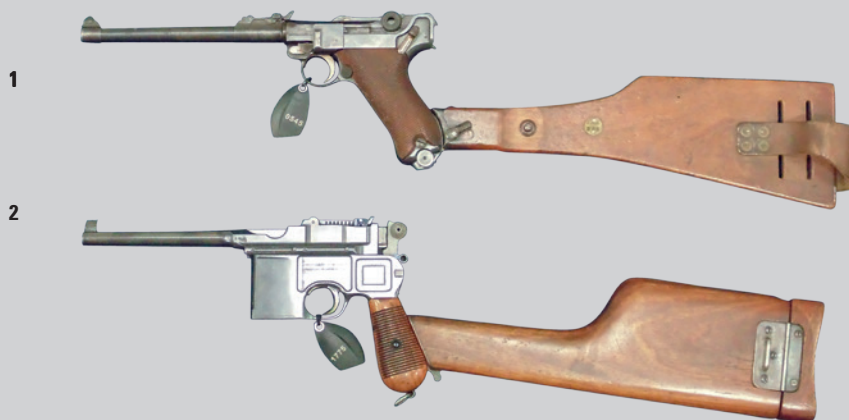
In 1898, the Dutch Army was equipped with old-fashioned 9.4mm gate-loaded revolvers, manufactured by several small private companies. When the Army expanded by extending conscript enlistment periods, it could not obtain sufficient additional revolvers quickly, so the decision was made to re-equip the mounted artillery with carbines instead of revolvers and use the pistols thus released to meet the shortfall. This decision evolved into replacing the revolvers with semi-automatic pistols with detachable buttstocks, however, thereby combining the advantages of both.

The War Department organized trials in 1899–1900 for pistols with detachable buttstocks, with sufficient accuracy and stopping power to put men and horses out of action at ranges of 300–400m. Four pistols were submitted – the Mauser C96, the transitional Borchardt-Luger, the Bergmann and the Roth. The Borchardt-Luger was replaced by two improved ‘Para-bellums’, presumably the 1899 prototypes originally developed for the Swiss tests. All of the pistols submitted for the trials were fired at various ranges between 25m and 400m, with the Parabellum scoring best, followed by the Mauser, Bergmann and Roth, respectively. The Parabellum also scored highest in the rapid-fire test, firing 32 rounds within the 30-second limit, compared to 21 or 22 for the other guns, which used slower charger loading. It also scored best on reliability, whereas the Roth failed to eject 164 times in 235 shots.

the weapon, similar to the Mauser 'Broomhandle', the final version used a simple flat-board stock like that of the P 04, and a separate leather holster which strapped to the stock.

Tests showed the rate of aimed fire from artillerymen with stocked LP 08 pistols was roughly 2.5 times that of the carbine. Although accuracy was not as good – especially at longer ranges (150m and greater) – the increased number of rounds meant just as many hits were scored per man. Once the higher number of men equipped with

stocked pistols compared with carbines was factored in, the new pistol significantly improved each artillery battery's ability to defend itself against surprise cavalry attacks. Tests suggested that units equipped totally with the LP 08 would achieve roughly three times as many hits as units equipped with carbines and short-barrelled pistols at ranges out to 600m. Pistol bullets were less powerful than those fired from carbines, but tests showing that 9mm rounds would penetrate a horse's skull at 1,000m suggested they were powerful enough.



The LP 08 (1) and Mauser C96 (2) stocked pistols in the Small Arms School Collection.

Only the Parabellum was recommended for further trials, though the authorities noted that any pistol required intensive training for effectiveness beyond 50m, and feared the mounted artillery might not find time or opportunity for such training. In the new trials, the Parabellum fired 500 rounds without cleaning, with only one failure. This was followed by severe reliability tests, including submerging the pistol in water before firing, sprinkling it with sand and water and rust tests. Overall the pistol did well, though there were some issues with toggles not closing on rusted or sandy guns. Finally, the pistol was used to fire off all remaining ammunition (3,200 rounds in total during the trials) without significant problems, despite its previous mistreatment.

There were still concerns about whether artillerymen would use the weapon effectively at range, and whether the pistol's high rate of fire would encourage men to expend all their ammunition quickly, leaving themselves defenceless. Ten further Parabellum pistols were ordered for field trials, though amusingly the Dutch almost ordered a rather excessive 50 magazines per pistol – being used to disposable rifle chargers, they had not appreciated the magazines were refillable!

These artillery trials ran during 1901–03, partly because of delayed deliveries from DWM. The two regiments conducting the tests gave rather contradictory opinions – one found the pistol to be safe and easy to handle with a good rate of fire while the other felt that though the Parabellum was accurate and presented few problems, it could not be recommended

for adoption. The trials recommended further testing, but the Dutch Army's revolver shortage was becoming acute and so the decision was made to look for an infantry pistol, rather than a cavalry carbine.

New infantry trials were organized in 1903–04, testing ten 7.65mm Parabellums with shorter 100mm barrels and no stock lugs against ten examples of the new 7.63mm Mannlicher 1902. The trials were then delayed to include the Belgian FN Browning M1903. Frustratingly, when the Brownings finally arrived, they proved disappointing and were promptly excluded. The Dutch made several modifications to the Parabellum including new grip screws which released the grips after only half a turn, and a cartridge counter resembling that of the US Powell design. One Parabellum test pistol was also converted to full automatic and apparently performed well, though the idea was not taken forward. The trials decided the Parabellum was the better pistol, but the Dutch were reluctant to commit to recommending that it should be adopted.

To resolve this, the Dutch ordered another 174 Parabellums (109 in 7.65mm and 65 of the newly available 9mm calibre) in December 1904, and began further discussions with DWM to resolve their remaining concerns. It has been suggested that the Dutch authorities were responsible for the coil mainspring replacing the previous leaf-type mainspring, making closure of the action more reliable. The evidence for this is circumstantial at best, however. The War Minister finally recommended adoption of the improved 9mm Parabellum in 1905 and an initial contract for 917 pistols (of a projected initial Dutch Army requirement for 3,800) was drawn up. Several members of the Dutch parliament had strong prejudices against semi-automatic pistols and blocked funding, however, so the contract was cancelled.

Meanwhile, the Dutch East Indies maintained separate armed forces (the Koninklijk Nederlands Indisch Leger or KNIL), with their own procurement and budget, which were also finding revolvers hard to obtain in quantity. Ten Dutch-specification 9mm Lugers (essentially New Models with grip safety) were delivered to the KNIL in the Indies in 1907. After the



A KNIL M11 Luger in 9mm with Dutch 'RUST' (safe) marking on the safety catch. The brass plate was engraved to indicate the unit to which the pistol belonged.
(© Royal Armouries PR.12892)

exhaustive previous testing, the KNIL tests were largely limited to confirming that the pistol coped with tropical heat, humidity and mud, but still lasted until 1909. The major problem discovered was swelling of the wood grips under tropical conditions, causing the magazine release to stick, which was resolved by cutting away the grip interiors more extensively.

The KNIL adopted the Parabellum as the Pistol M11. These had safety catches marked 'RUST' and extractors marked 'GELADEN' on both sides. A special magazine was developed, which disassembled more easily for the frequent cleaning that was necessary in the tropical environment. Overall, the KNIL ordered 4,581 pistols from DWM before World War I, though the last 400 were not delivered due to the outbreak of hostilities. The war also brought to an end a 1913 proposal to evaluate long-barrelled versions fitted with shoulder stocks – effectively the LP 08 – for the KNIL's mounted artillery.

The KNIL's army expanded significantly during World War I, and tried to purchase further M11 pistols in 1919. DWM could not accept the order, however, due to the post-Versailles restrictions on the manufacture of military pistols in Germany. The KNIL contract for 6,000 pistols was thus placed with Vickers Ltd, DWM's agents in Britain. The obvious assumption is that DWM shipped semi-finished parts to Vickers, who assembled and proofed the weapons, but Görtz & Sturgess show evidence suggesting Vickers actually set up a production line in Britain and produced the guns largely from scratch, despite the greater expense involved, presumably hoping for further sales which never materialized. The Vickers pistols were delivered to the KNIL in 1921–22. Most came without wooden grips as a cost-saving measure, being fitted with coarse-chequered grips made in the KNIL workshops. Once the Versailles restrictions were removed, the KNIL ordered another 3,820 M11 pistols directly from DWM in 1927, these being delivered in 1928. The KNIL pistols saw action against the Japanese during World War II, and by both government forces and the Indonesian *Tentara Nasional Indonesia* independence movement when the Dutch tried to reassert control over their former colonies after 1945.

The Dutch Navy acquired 40 stocked German P 04 pistols for aircrew of the naval air service in 1918: 12 came from a stranded German U-boat, while 28 were purchased from DWM, in return for critically needed raw materials and horses. These weapons were designated 'Pistol, Automatisch, No 1 (Parabellum)' in Dutch service, but were replaced with Browning M1903s after 1922. The Dutch police and Home Guard acquired a variety of Lugers amongst the 4,000-odd pistols included in the weapons surrendered by German troops returning home via the Netherlands after World War I. The Dutch Navy purchased 3,654 standard P 08 pistols with Dutch markings between 1928 and 1940, using the existing 'Pistol, Automatisch, No 1 (Parabellum)' designation, despite the new pistols being of a notably different pattern, with shorter barrels and no grip safety. The last 1,000 pistols ordered in February 1940 were not delivered before Germany invaded the Netherlands in May 1940, and were taken over by the German Army despite their Dutch markings. Both the Dutch pistols and captured German examples remained in Dutch naval service until the 1960s.

Other military-contract Lugers

The Luger was trialled by or sold to numerous armies across the world. Space prohibits detailed discussion, but most differed from the main models only in national markings. Some known marking variants (such as the Russian 'crossed rifles' pistols) are best interpreted as commercial pistols (see pages 69–75) marked by local resellers, and this account restricts itself to government contracts.

Bolivia purchased 500 9mm P 08s in 1913; given the date, the pistols lacked the stock lugs or hold-open catches which were not at that time standard on the P 08. They are marked with 'EXERCITO DE BOLIVIA' ('Bolivian Army') above the chamber, and 'SEGURO' ('safe') and 'CARGADO' ('loaded') on the safety and extractor respectively.

Brazil supposedly purchased 500 Old Model Parabellums, although documentation is lacking. It certainly purchased 5,000 7.65mm/120mm-barrel New Models around 1907, marked with the Portuguese 'CARREGADA' on the extractor.

In 1903, **Bulgaria** purchased 1,000 Old Model Parabellums; these were designated as the 'Automatic Pistol Model 1903'. They carry the Bulgarian national arms, and safeties are marked in Cyrillic script. A second purchase of 7.65mm/120mm-barrel New Model pistols were designated the M1908, and have Cyrillic markings on the extractor as well as the safety. A final pre-World War I purchase of 10,000 9mm P 08s were designated as the M1911. These differed from standard P 08s by having Cyrillic markings and a large hinged lanyard ring at the base of the grip, rather than the usual fixed loop on the rear frame. A last batch of 5,600 standard German P 08s were purchased in 1942.

Attempts by **Finland** to purchase 9mm Parabellums in 1922 were refused due to the Versailles restrictions. Around 8,000 P 08-pattern pistols fitted with 7.65mm/98mm barrels were purchased in 1923 instead and designated as 'Parabellum' Pistooli 23, usually shortened to m/23. Brass unit-marking discs were originally inset into the right grip, but removed during World War II. Many m/23s were reworked into 9mm pistols using new locally made barrels during World War II, during which Germany supplied Finland with standard 9mm P 08s. Some remained in second-line service into the 1960s.

Latvia purchased 834 9mm P 08-type pistols in 1936–39, plus 19 with 7.65mm/118mm barrels in 1939; the logic behind the latter purchase is unclear but may relate to the Swedish trials noted below. None had special markings.

In 1935, **Persia/Iran** ordered 3,000 9mm P 08 pistols and 1,000 long-barrelled LP 08 pistols with stocks from Mauser; the long barrels and sights for the LP 08s came from World War I stocks transferred from DWM with the production line. The pistols bore the Shah's Pahlavi crest and lion, and were marked in Farsi script. They were designated as the Model 1314, for the Islamic calendar year.

In **Portugal**, a committee tested the Borchardt-Luger in 1901, and recommended adoption by the Army and Navy, but lack of funds meant no action was taken. A second committee in 1907–08 also

recommended the Luger. The Army purchased 5,000 7.65mm/120mm-barrel New Models as the 'Pistola 7MM.5 M1909', while the Navy purchased 350 9mm/100mm-barrel New Models as the M910. Both had safety catches marked 'SEGURANCA' ('safety') and extractors marked 'CARREGADA' rather than 'GELADEN', and carry one of two versions of the Portuguese royal cipher. A subsequent batch of 300 Navy pistols purchased after the deposition of the monarchy in 1910 bear the crest of the republican Navy instead. In 1935 the Guarda Nacional Republicana (GNR, the paramilitary national guard) purchased another 564 7.65mm/120mm-barrel New Model pistols, while the Navy bought an additional 156 9mm M910s between 1935 and 1941. The last few of this order and a final order for another 24 were completed with P 08 frames, without the New Model grip safety. The final batch of Mauser P 08 production – around 4,578 pistols – was purchased in 1943 as the M943, and saw service during the Portuguese colonial war in Angola.

The Luger was also used in **Siam/Thailand**. In 1936, the Bangkok police purchased 350 9mm P 08s and 100 long-barrelled LP 08s, with stocks. Again, the LP 08s were built with new Mauser receivers, but old World War I-era DWM barrels and sights.

Sweden tested 7.65mm Parabellums in 1903–04, but rejected them in favour of the Browning M1903. Even so, the Swedes purchased 285 9mm/120mm-barrel Parabellums in 1938 for units testing Finnish 9mm Suomi submachine guns. They also purchased 34 7.65mm/118mm-barrel pistols the following year, apparently for comparison.

Turkey purchased 1,000 Mauser-made 9mm P 08s for the security police in 1936–37. They carried the Turkish republican cipher and were die-stamped 'Directorate of Public Security' on the receiver. The safety was marked 'emniyet' ('safe' or 'secure') while the extractor was marked 'ates' ('fire'). The Army purchased a few P 08s as officers' sidearms, and the Air Force received others as standard equipment aboard Focke-Wulf Fw 190 fighters supplied in 1942/43 to maintain Turkish 'friendly neutrality'.



A Finnish officer firing a Luger. Finland purchased 7.65mm Lugers in 1923, designating these pistols as the m/23, but this weapon appears to be one of the 9mm P 08s supplied by Germany as military aid during the Continuation War (1941–44), when both countries were fighting the Soviet Union. (Tom Laemlein/Armor Plate Press)

UNUSUAL LUGERS

Luger carbines

Fitting pistols with shoulder stocks for increased range and accuracy was a common idea in the early 20th century; commercial Parabellums could have stock lugs as a special-order option, and both the P 04 and LP 08 had wooden-board stocks. A few Parabellums were produced as true carbines, however. These had 300mm barrels with a chequered wooden forestock beneath, providing a grip for the left hand. The detachable wooden butts were fully rounded like rifle stocks, rather than the flat-board versions of the military pistol-carbines. Most were 7.65mm calibre and built on Old Model frames with grip safeties, though a few in 9mm and/or built on New Model frames exist.

A special high-powered cartridge was produced for these carbines, which not only made best use of the longer barrel, but also provided enough impetus to move the heavier barrel and working parts backwards, which the rather weak standard load might not have done. To prevent failures to feed on the return stroke, the leaf-type mainspring in the butt was supplemented by an auxiliary return spring within the wooden forestock; the few New Model carbines made omitted this, as they were fitted with stronger coil springs in the butt.

The Parabellum carbines were not especially successful, with only 2,000–3,000 produced, mostly in 1904–05, although stocks lasted until the start of World War I. They did see use by some famous people – the Kaiser used one for hunting, because his withered left arm prevented him from using a bolt-action rifle, while Theodore Roosevelt took another on his arduous 1913 Amazon expedition.

Georg Luger also produced a self-loading rifle prototype in 1906, chambered for the standard 7.92×57mm German rifle round. It used a toggle-action mechanism, but was not related to the pistol and never entered volume production.

Baby Lugers

DWM produced four 'Baby Parabellum' prototypes in 1924–25, two chambered for .32 ACP (7.65mm auto, much less powerful than 7.65mm Parabellum) and two for .380 ACP (9mm Short). All had 75mm barrels, and short five-round (9mm) or six-round (7.65mm) magazines. They differed significantly from standard Parabellums, but retained the recoil-operated toggle-lock design. Aimed at the pocket pistol market, their locked-breech design was both unnecessary for the low-powered cartridges and too expensive to compete with cheap blowback designs. Other 'pocket pistols' were produced by shortening standard guns. A seven-shot



Two 7.65mm 'Old Model' carbines. The upper example is an early 1900 variant with a five-position sight mounted on the rear toggle, while the lower version is the more common 1902 variant, with a three-position sight above the chamber. (© Royal Armouries PR.7525 and XII.3585)



The 7.65mm Furrer M1919 submachine gun (above) was effectively a Luger action mounted in a carbine stock, designed by the head of Waffenfabrik Bern, which produced Swiss military Lugers. The Bergmann MP 18 (below) was not related to the Luger technically, but took over the tactical role of the LP 08. It fed from the same 32-round snail drum, fitted with a slide-on collar to reinforce the neck. (© Royal Armouries PR.10304 and PR.7354)

pistol converted from a standard New Model weapon with 80mm barrel and shortened grip was supposedly owned by Georg Luger himself. Mauser also made four 'Pocket Parabellums' in the 1970s (two each of 9mm and 7.65mm) by shortening the barrel and grips of standard 29/70 and 06/73 pistols being produced at the time.

Full-automatic Lugers

Converting Parabellum pistols to full automatic was straightforward – Luger demonstrated a full-automatic Parabellum as early as 1901, and the Dutch also converted a prototype to full automatic. Both used a simple modified sear bar, similar to the 1914 Navarro conversion, where the closing toggle tripped the sear and fired the next shot. This made them 'all or nothing' weapons – if set to full automatic, they fired until the magazine emptied, though the user could theoretically use the grip safety to stop the weapon firing. Later conversions offered more controllable selective fire, where the weapon continued firing only while the trigger was held down, though the earliest of these (the 1916 Swiss Senn device) required the use of a screwdriver to switch between semi- and full-automatic modes. The light working parts meant a rate of fire around 1,200rd/min, though, and the magazine emptied in $\frac{1}{3}$ of a second. Coupled with the light weight of the pistol, this made it very difficult to control on full automatic.

The LP 08 with its stock and drum magazine obviously offered better controllability, and interest in full-automatic versions revived briefly. Even so, while converting an LP 08 into a full-automatic weapon was feasible, it was obviously better to design weapons specifically for the job, such as the Bergmann MP 18. As an odd footnote, the Furrer M1919 submachine gun, developed by Adolf Furrer, the director of Waffenfabrik Bern, was essentially a long-barrelled full-automatic 7.65mm Parabellum action mounted in a Bergmann-style carbine stock. While it functioned, its complexity and cost condemned it to obscurity.

Odd Lugers

Aside from hybrid 'parts guns' made up from whatever old components manufacturers wished to use up, customers could order commercial pistols with a wide range of options such as longer barrels. A 1903 patent also exists for a modified toggle train, which improved the smoothness of the action and reduced the strain on parts. It was more complex to produce and required a redesigned grip safety, however, and never progressed beyond the prototype stage.

Mauser experimented with cast-zinc frames in 1938. These were significantly cheaper than traditional machined frames, but were not strong enough and fractured quickly during testing with 9mm ammunition.



USE

Taking the Luger into battle

OPERATION AND MAINTENANCE

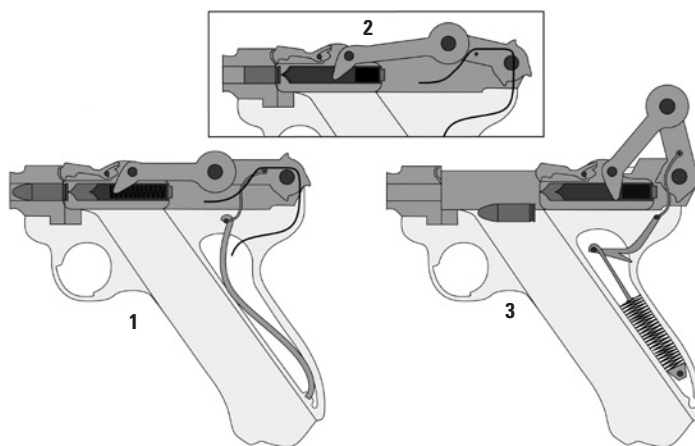
Firing the Luger

Models vary slightly, but the most common – the P 08 – is typical. Starting with the pistol set to ‘safe’, the user slides a full magazine into the grip until it is locked home. Pulling the toggle grips up and to the rear chambers the first round. The safety catch is at the rear left side of the frame. The P 08 safety is set to ‘GESICHERT’ (‘safe’) when in the down position, and pushed up with the thumb to fire.

The raked grip means the weapon points intuitively, making aiming easy. Sights are a simple V-notch at the rear of the frame, and a front blade at the muzzle. The user puts the front sight on the target and centres it in the notch of the rear sight. Trigger pull varies, but can be slightly ‘mushy’ due to the complex system of levers it actuates. Accuracy is excellent for a pistol, because the barrel and breech recoil in a straight line, rather than dropping as in the Browning system. The moderate recoil is easily controlled, even using the single-handed grip taught to pistol shooters of the period. The toggle pops up briefly into the line of sight after firing, which can be initially disconcerting but in fact has no practical effect – it only begins to rise once the bullet has left the barrel, so there is no effect on accuracy even if the user flinches.

The empty cartridge case is ejected upwards and slightly forwards. The toggle locks to the rear when the last round is fired, giving a clear visible indication as to when the weapon is out of ammunition. To reload, the user depresses the magazine-release button, located at the front of the grip just behind the trigger guard. The empty magazine drops free, allowing the user to insert a replacement and pull the toggle back to chamber the first round.

At the moment of firing (1), both barrel and toggle group are in a straight line. When the pistol fires, both barrel and toggle group move backwards together until the toggle drums hit the cam ramps machined into the exterior of the frame (2), which causes the toggle to break upwards and open the breech. The toggle continues to fold up and back until the pistol reaches full recoil (3), after which the mainspring begins to contract, pulling the toggle down and forward to close the action and chamber the next round. Note that one pistol (1) has been depicted with the old-style leaf-type mainspring in the butt, the other (3) with the later coil mainspring which replaced it.



The long-barrelled LP 08 could be used as a pistol, but was best fitted with its flat-board shoulder stock. This allowed a much more stable firing position, with the gun stabilized by shoulder as well as hand. The author was initially unsure where to put his front hand, as there is no forestock and gripping the barrel directly is unwise because it recoils backwards, but using the left hand to cup the right hand on the pistol grip worked reasonably well. The firing position with butt tucked into the shoulder brings the user's eye much closer to the pistol, so the LP 08 rear sight was moved forward and placed atop the chamber, allowing better eye relief. The rear sight has eight positions, rather optimistically calibrated to 800m and adjusted by moving a



The author firing a 7.65mm Swiss Modell 06/29 Luger, in the approved period shooting stance. He found it a very pleasant and accurate pistol to shoot. (Trevor Bain)



The rear sight of an LP 08. Depressing the button on the side allows the slider to be adjusted for ranges up to 800m.

slider along a track to raise the sight notch, compensating for bullet drop at longer ranges. The system resembles that used on Mauser rifles, familiar to every German soldier of the period. With the longer barrel and more stable stance, hits out to 100m or further are entirely possible. The shoulder stock and 32-round drum magazine more than double the weight of the basic pistol, making recoil very controllable and allowing quick shooting.

Learning to use the Luger

A soldier must be able to use his weapons effectively. The training time devoted to teaching pistol shooting was very limited, though, for two reasons. First, the German Army quite reasonably believed that pistols were mainly used for self-defence at relatively short ranges. Careful practice to hit targets at long distances was unlikely to justify the time spent, which was better used learning other things. Second, recruits were



The manual safety catch on a P 08 in the Small Arms School Collection. Foreign-contract and commercial export versions might have markings in other languages. Like most pistols of its time, the Luger was not designed for ambidextrous operation.

already trained as riflemen during basic training, giving them a decent grounding in the principles of shooting. Pistol training therefore only needed to expand their existing skills.

Training material was set out in several manuals, most importantly the Imperial-era *Druckvorschriften-Etat* ('Printed Instruction') DVE 255 of 1909 and the revised Wehrmacht *Heeres-Druckvorschriften* ('Army Printed Instruction') HDv 255 of 1935, though the sections on marksmanship practice and repair were omitted from the latter. Other manuals covered specific variants such as the LP 08, while a variety of general training manuals also included sections on the pistol.

[WPN064_053] Training began with learning the parts of the pistol, followed by loading magazines and handling using inert dummy cartridges, then disassembly and cleaning. On the firing range, the soldier was taught correct firing positions and practised aiming the pistol without firing. Like most armies of the period, the Kaiser's army taught a one-handed pistol-shooting position, with the soldier's chest at right angles to the target and the gun arm raised to bring the pistol's sights to eye level. The left hand was placed on the left hip, or allowed to hang loose. The two-handed pistol-shooting stances popular today were not taught by any army until after World War II, and were actually prohibited by Wehrmacht-era manuals for shooting in the standing position, though they did discuss using the left hand to support the right hand or wrist from beneath when firing from a prone position.



Luftwaffe men in tropical uniforms practise shooting in North Africa, June 1941. Cleaning kits and boxes of cartridges sit atop the (presumably) empty inverted packing case. The closest man wears the short-lived sun helmet. (Bundesarchiv, Bild 101I-436-1027A-12 / photo: Billhardt, Willi)



A naval artillery soldier (in helmet) receives instruction on the P 08, which became the standard German Navy sidearm after World War I. The toggle of his P 08 is drawn back, prior to the insertion of a magazine. Both he and the instructor wear bib-like naval drill collars. (Bundesarchiv, Bild 101II-MW-6254-08 / photo: Beilstein)

Each soldier fired a number of rounds (32, in the 1909 schedule) starting with six rounds of ‘test shooting’ with elbows resting on the shooting bench and hands resting on a sandbag, letting the soldier get used to the pistol and its sights. The main portion was three more ‘test’ rounds, then 15 rounds of ‘target shooting’, firing five rounds from a standing position at ranges of 25m, 50m and 75m. The minimum required score was ten hits out of 15 target shots, with at least three hits on each target. Finally, the remaining eight rounds were expended in ‘combat practice’ against targets at ranges between 25m and 50m. It is worth remembering that this represented the minimum requirement, and that some men – particularly officers – did significant additional practice shooting in their own time.

Cleaning and caring for the Luger

All pistols need a certain amount of care to remain functional, especially because ammunition of the early 20th century invariably used corrosive primers which caused barrel erosion unless the pistol was cleaned after firing.

The Borchardt was notoriously complicated and difficult to strip, with correct re-tensioning of its clock-type spring for reliable functioning being especially troublesome. As an expensive item, the Borchardt was usually supplied cased with a set of tools. These included a wood-handled screwdriver with two interchangeable double-ended blades for the various screws holding the weapon together, a long one-piece cleaning rod, and a wooden 'Baring block' which slid inside the magazine well to keep the action open in the absence of a mechanical hold-open. This block was often drilled to contain further small tools, including a second multi-part cleaning rod, two pin punches and a pair of tommy bars.

The Luger was much simpler to maintain. Even so, the manual restricted enlisted soldiers to simply field-stripping their pistols for cleaning, with only officers and armourers being allowed to disassemble them completely. German Lugers were issued with a cruciform stamped-metal 'screwdriver', usually kept in a small pocket under the holster flap. This had a long arm terminating in a screwdriver blade and a central circular hole which could be slipped over the magazine-follower knob and pulled downwards to allow cartridges to be slotted into the magazine easily. The other main tool was the cleaning rod, used with oiled tow patches to clean the barrel. Commercial cleaning rods often had cylindrical metal grips fitted at right angles across the end of the shaft, incorporating a screw-top grease container. Military cleaning rods for the P 04 and LP 08 were similar, but with solid cylindrical wooden grips rather than metal ones. Cheaper materials were used during World War I, with the original walnut and brass being replaced with white beech and steel. The shorter P 08 cleaning rod was simpler, made in one piece with the end of the steel rod bent into a flat loop to act as a grip. Initially, one cleaning rod was issued for every six P 08 pistols, which was adequate in peacetime, but this was increased from 1918 so each P 08 came with its own cleaning rod. Each LP 08 was issued with its own individual cleaning rod (which resembled that of the P 04 except for length) from the start. The short P 08 cleaning rod was usually stored in loops under the holster flap, while the longer cleaning rods for the P 04 or LP 08 fitted into external pockets on the holster's spine.

From 1934, existing cleaning kits for all personal weapons were replaced with the Reiningungsgerät 34 universal cleaning kit. This was a rectangular tin about the size of a tobacco tin, with hinged flaps covering both ends. It was carried either in the soldier's bread bag or in a special pocket of his assault pack. One compartment contained cleaning patches, while the other contained a chain pull-through to clean the barrel, an oil bottle, a bore brush, a chamber brush and a disassembly tool. It is not clear why a chain (rather than cord) pull-through was used, as it was well known that careless use of chain pull-throughs could damage the bore and impair accuracy. Early cleaning kits were well made, but quality declined during World War II.

OPPOSITE

An LP 08 field-stripped to its major components. After ensuring the pistol is empty, the user pushes back on the muzzle and rotates the side-plate latch. The side-plate can then be removed, and the barrel and upper receiver slide off the lower frame. Once the toggle retaining pin is pushed out, the toggle train can be removed.



THE LUGER IN GERMAN SERVICE BEFORE 1914

Although there are claims that some officers of Germany's East Asian Expeditionary Corps sent to help suppress the Boxer Rising in China during 1900–01 carried privately purchased prototype Lugers, these remain unsubstantiated. The first Lugers definitely to see active service were trials examples of the P 04 used during the Maji Maji Rebellion in German East Africa (now Tanzania and parts of the surrounding states) in 1905–06. A report submitted afterwards noted that these P 04s had not seen use in combat, as men armed with pistols preferred to use a rifle carried by a gun-bearer. The time required to prepare the P 04 for shooting meant it was poor for countering sudden threats and most preferred a smaller, lighter handgun, finding the P 04 relatively heavy. The report criticized the grip safety, as the need to grip the butt very tightly in order to deactivate it made the hand unsteady and impaired accuracy (Görtz & Sturgess 2010: 343). The German Army accepted this feedback, and the grip safety was deleted in the final P 08 design. Even so, the Army apparently felt that personal gun-bearers might not be available in more typical campaigns and continued to issue pistols. In any event, the Luger – and the German Army – would shortly face a far greater test.

THE LUGER IN WORLD WAR I

A Luger fired the first shots of World War I. In the days immediately preceding the beginning of hostilities, French forces in the south withdrew 10km back from the border with Germany to avoid accidental incidents at this very tense time, while ordering mobilization of the reserves. Even so, on 2 August 1914 – a day after Germany declared war on Russia, but the day before Germany declared war on France – a German cavalry patrol encountered French infantry near Joncherey. The Germans were inside French territory, presumably trying to locate the new French positions, when they encountered a roadblock. The patrol leader – Lieutenant Albert Mayer of the 5th Light Cavalry – fired three rounds from his Luger, fatally wounding Caporal Jules-André Peugeot before being killed himself by return fire.

Once war began, both sides found that modern breech-loading rifles and machine guns tipped the tactical balance heavily in favour of the defender. Despite initial if costly successes in the West, the German advance was halted at the Marne. After the initial period of relatively open warfare, both sides dug themselves into increasingly complex and sophisticated systems of trenches running from the Swiss border to the sea. Germany now found herself fighting exactly the two-front war against France and Russia she had hoped to avoid, with the added complication of British forces taking the field alongside the French after German violation of Belgian neutrality.

The German Army had not fully re-equipped with the P 08 by the start of the war, and units such as the field artillery still carried the obsolescent Reichsrevolver 79 or Reichsrevolver 83. Expanding the Army and replacing lost weapons created an insatiable demand for more pistols.

Lugers for machine-gun detachments

The German Army adopted machine guns enthusiastically before World War I; each infantry regiment included a six-gun machine-gun company. By 1918, this had increased to three 12-gun companies per infantry regiment. These units were early recipients of the P 08, each being authorized 93 pistols. The first German Army Lugers were bought specifically to equip the experimental detachments in 1907, before the P 08 was adopted, and thus received standard 9mm New Models, some with grip safeties.

Pistols were necessary because machine-gunners (unlike artillerymen) were stationed near the front line, and too heavily burdened with ammunition boxes and water cans to carry rifles.

The German Maxim MG 08 could deliver long-range harassing fire, but many engagements took place at surprisingly close range, because preparatory artillery bombardments invariably targeted known machine-gun positions. The machine-gunners retreated to deep bunkers, emerging immediately after the barrage lifted to engage enemy troops advancing behind it. The MG 08 was dependable and effective, but its heavy sled mount limited the gun's traverse, and crews had to cover the flanks of their position to avoid being overrun. Chances of survival were not good if their position fell; like snipers and flamethrower men, captured machine-gunners were often shot out of hand by vengeful enemy troops.



A German MG 08 machine gun being carried by two of its crew during World War I. The limited traverse permitted by its heavy sled mount meant the crew's holstered pistols were needed to defend the flanks of their position. The leading man carries a hauling line for the gun over his shoulder. (Bettmann/Getty Images)



The Germans adopted numerous 'substitute pistols' during World War I, including 150,000 Mauser C96 pistols. The C96 (below) could be easily modified to take the standard 9mm round, and such pistols were marked with a large red '9' on the grip. This marking was also occasionally burned into P 08 grips (above; this example lacks its trigger) from over-zealous application or misunderstanding of the directive, as it served no purpose on Lugers. The pistols illustrated are from the Small Arms School Collection.

While P 08 production was stepped up as rapidly as possible, the Army also purchased large numbers of 'substitute pistols'.

Meanwhile, rear-echelon units were equipped with the old Reichsrevolver types, blowback pocket pistols or even captured Russian Nagant revolvers.

The popular image of World War I has British and French troops being mown down while assaulting German trench lines, but the German doctrine of invariably counter-attacking immediately to regain lost ground meant they were often the attackers tactically, even when on the strategic defensive. Artillery was by far the greatest killer on the Western Front, and machine guns laid down devastating defensive fires. Neither artillery nor machine guns could go forward with the advancing troops, however, and the main infantry weapons remained the rifle and pistol, increasingly supplemented by the new hand grenades. The close-quarter fighting when clearing or raiding enemy trench lines – or repelling enemy troops attempting the same – made many soldiers appreciate the close-range firepower of a pistol in addition to their rifle and bayonet. This was especially true for the Germans, though their long and unwieldy Gewehr 98 rifle was increasingly replaced with shorter, handier carbines.

Men who could acquire a pistol invariably did so, whether authorized or not – whereas almost one-third of rifles issued to new German soldiers were reissues of weapons recovered from the battlefield, very few pistols were recovered in this manner, because men who found pistols invariably kept or traded them. Trench warfare made the long-barrelled LP 08 pistol

Cavalry mêlée on the Eastern Front, August 1914 (opposite)

The battles of Tannenberg and the Masurian Lakes in August and September 1914 removed the immediate Russian threat to East Prussia even though Germany failed to defeat France quickly as the Schlieffen Plan envisaged. Reconnaissance was crucial in the open spaces of the Eastern Front, and with few aircraft available, much of the work fell to cavalry which could operate unconstrained by the trenches and barbed wire of the West. Without radios, however, cavalry scouts could only report what they saw if they were able to return to base, and driving off or killing enemy scouting detachments was also a key cavalry role.

Both sides armed their cavalry to fight on foot if necessary – the Russian Mosin 'Dragoon Rifle' was only 60mm shorter

than the standard version, while the German Karabiner 98AZ was short only when compared to the unwieldy Gewehr 98. They were also equipped with lances for shock action, and swords for close-quarter mêlée. A pistol which could be used with one hand while the other controlled the horse was obviously a great asset to a cavalryman issued with it, as a pistol bullet could not be parried and could put an opponent down before he came within sword reach. Once the magazine was empty, though, or if the shooter missed – and being mounted on a frightened horse rarely improves one's accuracy – then the pistol was a poor weapon to parry a sword cut, and some men thus preferred to trust to swords for close work.



The LP 08 at war

The LP 08 was adopted by the German Army in 1913, but it took some time to finalize the details, produce manuals and so on, and the project had relatively low priority. As a result, very few LP 08s were delivered before the outbreak of war in August 1914. Worse, the rapid expansion of the Army put extra pressure on pistol production, and rather than receiving new LP 08s, many artillerymen found themselves stuck with their obsolete revolvers for much of the war.

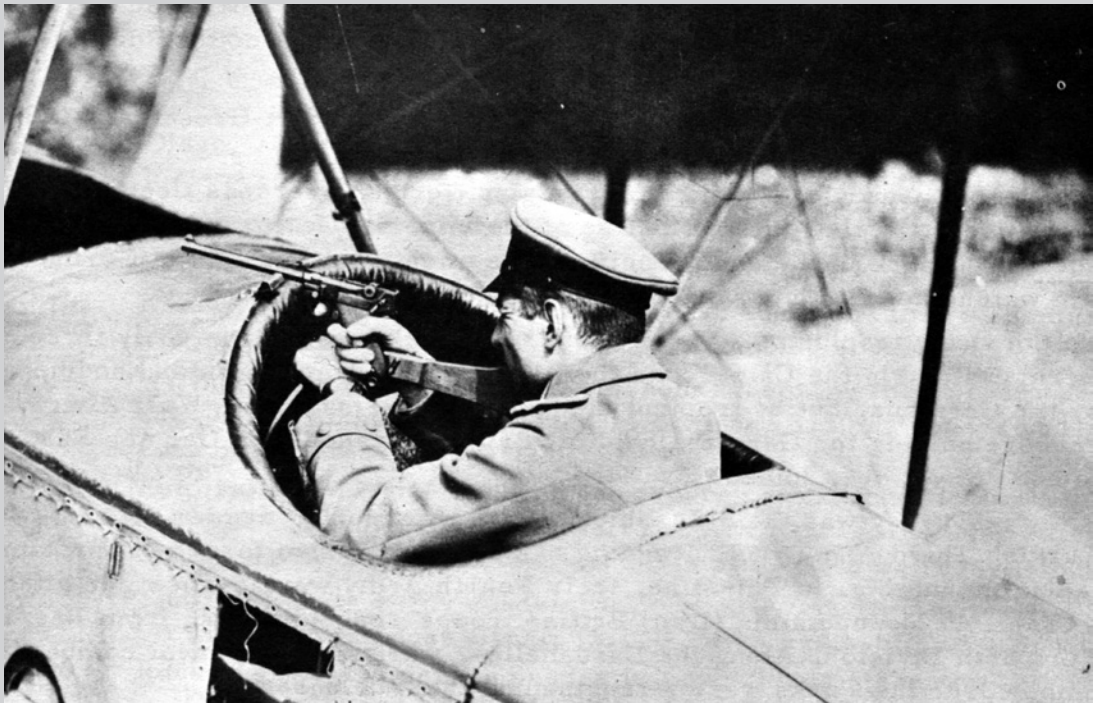
Meanwhile, personnel of the Army's flying service were armed with the standard P 08. They believed the LP 08 would be more useful, and wished to adopt it to arm aircrew. Once again, however, few were available by the outbreak of war, and many aircrew who had transferred from other branches such as the cavalry kept their standard P 08s. Accounts from the early days of the war certainly mention aircrew using pistols and carbines against enemy aircraft, but machine guns quickly became the standard armament for air combat as aircraft became more powerful. The flying service limited the issue of LP 08s to pilots, as opposed to other aircrew, in autumn 1916. In December 1917 it trialed a full-automatic LP 08, though one cannot help thinking that more effective weapons were available by that point.

In fact, the main users of the LP 08 would not be airmen or artillerymen, but infantrymen. Although very few LP 08s were

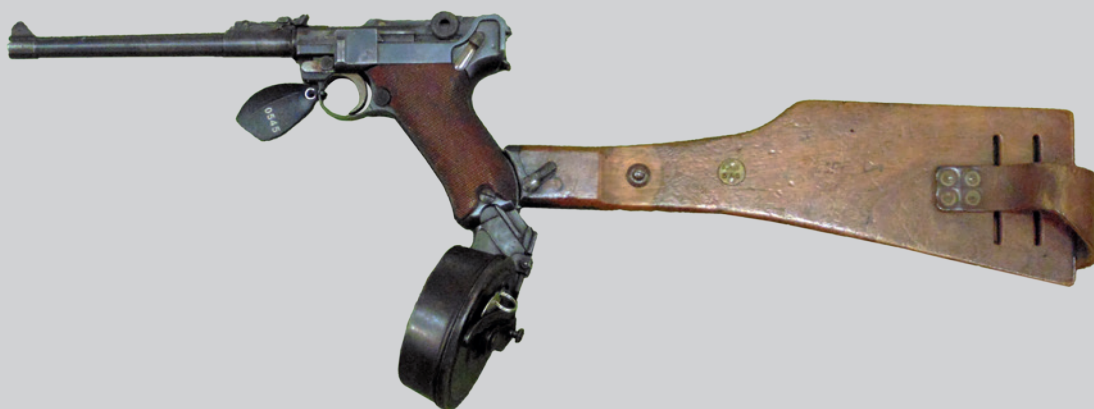
available for the first year of the war, the advantages of their high rate of fire at close range had obvious utility for trench raids and so forth.

Meanwhile, the Army was experimenting with fitting high-capacity sheet-metal drum magazines to early self-loading rifles such as the Swiss-made Mondragon. Perfecting self-loading mechanisms capable of handling full-power rifle rounds proved difficult, but the Army realized that the drum-magazine concept could be applied to stocked LP 08 pistols. The result was the 32-round *Trommelmagazin* (drum magazine), which gave the quick-firing LP 08 a significant boost to firepower, and allowed sustained action without the need to carry implausible numbers of eight-round pistol magazines. The value of the LP 08 led to a *Kriegsministerium* (War Department) order of October 1916, which authorized the issue to each infantry company of ten LP 08s and 100 *Trommelmagazin*, over and above their usual complement of pistols. These were to be used to equip combat patrols and to repel enemy assaults, as the War Department believed the drum magazine effectively doubled the pistol's firepower, making it second only to machine guns in terms of the rate of fire (Görtz & Sturgess 2010: 426).

Each LP 08 was also issued with a wooden *Patronenkasten* (ammunition box) containing five drum magazines, five canvas



The German Army's aviation forces used the LP 08 to arm aircrew such as the observer of this Aviatik B.I reconnaissance aircraft, in a posed photograph probably from 1914. It was soon superseded by machine guns, however. (Tom Laemlein/Armor Plate Press)



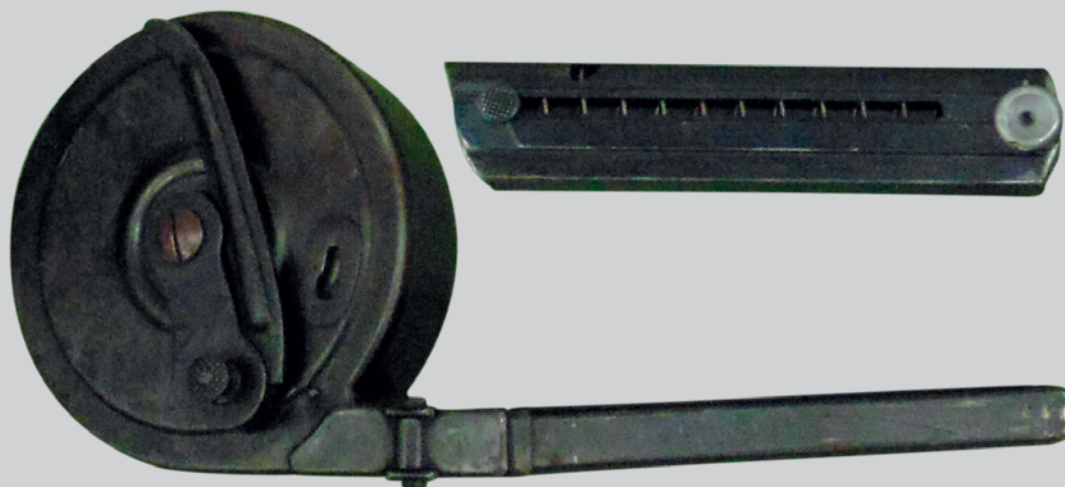
magazine carriers, 30 16-round boxes of ammunition (480 rounds in total) and a magazine-filler tool to ease the difficult job of loading rounds into the drums. Orders were placed for another 200,000 LP 08 pistols and 1,000,000 drum magazines at the beginning of November 1916, but would obviously take some time to deliver.

At the very end of the war, the German Army introduced the Bergmann Maschinenpistole 18 (MP 18), the first practical submachine gun. This used the same 9mm rounds and drum magazine as the LP 08, inserted into the side of the weapon rather than into the pistol grip. Although larger, the MP 18 had the same 200mm barrel length as the LP 08, and thus almost identical performance. Importantly, though, it was designed for full-automatic fire from the start, using a simple blowback design with

a relatively heavy bolt that kept the rate of fire down to 500rd/min. The weapon was thus reasonably controllable, especially given its greater (4.2kg) weight. Significantly, the Germans termed the new weapon a 'machine pistol' – the tactical instructions for the new MP 18 were identical to those for the LP 08, and it was intended for the same role.

Though well-known today, few MP 18s actually reached the troops. By contrast, the LP 08 seems to have made a considerable impact, because the International Control Commission supervising the post-Versailles German Army specifically prohibited the Reichswehr from having stocked pistols. Most examples were destroyed, though some were given new short barrels to convert them into standard P 08s.

An LP 08 (above) and magazines (below) from the Small Arms School Collection. The LP 08 was initially issued with three eight-round magazines and a shoulder stock, but was greatly enhanced when the 32-round *Trommelmagazin* (drum magazine) became available later. The stock buckled to the rear of the leather holster, and both were carried on a shoulder strap, though versions with belt fittings exist. Note the folding winding lever visible on the detached drum.







Trench raid, 1918 (previous pages)

Although the front lines in the West remained more-or-less static for long periods, both sides encouraged frequent trench raids to gain intelligence, disrupt the enemy and maintain an aggressive spirit. Here, German raiders have got into a British trench, just behind the front line.

By 1918, the Germans were increasingly replacing long rifles with shorter carbines such as the Mauser Karabiner 98AZ carried by the man on the left, but even these were still unwieldy for use in close fighting, and had a relatively slow rate of fire. Both sides made extensive use of

grenades when clearing trenches, along with mêlée weapons such as home-made 'trench clubs' and sharpened entrenching tools. Pistols were obviously very useful in these conditions, but only the Germans took the next step of fitting a shoulder stock to long-barrelled versions of the Luger to create a useful self-loading carbine with a high rate of fire and good ammunition capacity. Extra pistol magazines could be carried in the tunic pockets, while drum magazines might be carried in the haversack if the special canvas carriers worn by the centre figure were not available.

an extremely useful weapon, its shoulder stock and drum magazine giving it impressive close-range accuracy and useful semi-automatic firepower compared to bolt-action rifles. Although the infiltration tactics evolved by the Germans towards the war's end had British parallels, only Germany created specialized *Stosstruppen* or *Sturmtruppen* ('shock' or 'assault' units) to exploit them, and such units received generous allocations of the LP 08 as an assault weapon.

The Germans took the logical next step in the final year of the war, producing the first practical submachine gun, the Bergmann MP 18, using the same 9mm cartridge and 32-round snail drum as the LP 08, but with a simpler blowback mechanism and better ergonomics. It appeared too late to see use any significant numbers, however.

THE LUGER IN THE INTERWAR YEARS

November 1918 was an armistice, not a surrender. German soldiers marched home as formed units, still under arms. This apparent discipline was more because it was the fastest and most efficient way to get home than from any desire to continue as soldiers, however, and the returning men melted away once they reached Germany, many taking their weapons with them. Meanwhile, Germany descended into chaos. Elements of the Navy mutinied rather than fight the Royal Navy in a pointless final battle, and Polish-majority areas formerly annexed into eastern Prussia broke away to rejoin newly reconstituted Poland. The Kaiser abdicated and the government was overthrown. The country remained in anarchy for almost a year as the revolutionaries split between moderate Social Democrats and the Communist Spartacists.

Weapons were kept by demobilized soldiers, looted from ransacked armouries or found their way into the arsenals of revolutionary and nationalist groups, local defence militias and *Freikorps* (paramilitary units of ex-soldiers). Small and easy to conceal, pistols were especially desirable, and tens of thousands simply vanished.



The Weimar Republic emerged from the chaos in 1919 hoping for a peace treaty based on President Woodrow Wilson's '14 points', but Britain and France wanted revenge after four long years of bloodshed, and Germany was too weakened to object. The Versailles Treaty of June 1919 created an International Military Control Commission, though the United States declined to participate as Congress felt the treaty was overly harsh and refused to sign it. Germany's new army, the Reichswehr, was limited to 100,000 men, with strict limitations on numbers and types of weapons. It was allowed to retain 50,000 pistols – a very significant number for a force that size – but stocked pistols such as the P 08 were prohibited along with machine pistols. Surplus ex-military weapons, including 4,553,907 pistols, were confiscated and destroyed. Germany obviously chose to keep the weapons in best condition and standardized on the P 08, discarding other designs. Some weapons were also concealed from the control commission – a 1926 War Ministry report noted that stocks of pistols totalled 95,032, of which 49,679 were in secret 'black' stockpiles.

To reduce the huge numbers of illegal weapons in circulation, the Weimar government passed a law in August 1920 requiring registration of all civilian weapons and paying a bounty for any illegal former military weapon turned in before April 1921. To prevent weapons being 'borrowed' from Army stocks and turned in for the bounty, all government weapons had '1920' property marks stamped into them, regardless of their date of manufacture.

The state arsenals were closed, including Erfurt, which produced P 08s, and the machinery transferred to the small Simson firm, which

A German field-artillery crew on the streets of Berlin during the 'November Revolution' that followed the armistice of 1918. Several crewmen are wearing the distinctive large holster for the P 08. (Culture Club/Hulton Archive/Getty Images)

SA (Sturmabteilung or 'Storm Detachment') men, commonly called the Brownshirts, receiving Lugers in Berlin in 1933. The SA was a paramilitary wing of the Nazi Party which protected party rallies and attacked or intimidated political opponents until it was purged in an internal party coup in 1934. (Galerie Bilderwelt/Hulton Archive/Getty Images)



became the only small-arms supplier to the Reichswehr. Other manufacturers were prohibited from producing pistols in 'military' calibres (i.e. 9mm) or with barrels of more than 100mm. DWM's production of Parabellum pistols during these years was thus limited to 7.65mm models with 98mm barrels, though some were re-barrelled abroad or after the restrictions ended.

Police Lugers

Germany had numerous state and municipal police forces, plus paramilitary rural constabularies. The largest, the Prussian Landgendarmarie, selected a new pistol in 1910–11. The three contenders were an improved double-action Reichsrevolver 83, the 9mm Dreyse pistol and the P 08 recently adopted by the Army. The Dreyse performed poorly, but an improved version was submitted and ultimately selected, because its magazine was easier to load and because of concerns about the P 08's safety catch becoming accidentally deactivated when holstering the weapon.

Most other German police forces followed Prussia's lead and adopted the Dreyse, but the manufacturer had severe quality-control problems, and the design was declared 'un-warworthy' in 1913. Military requirements took priority from 1914, and the police 'made do' with obsolete revolvers and low-powered 7.65mm blowback pistols until after World War I. The exception was the paramilitary Reichsgendarmerie in the conquered provinces of Alsace and Lorraine. These fell under Army control, and received around 1,000 P 08s during 1913–15.

The Schutzpolizei (municipal police) acquired Lugers after World War I, mostly reworked ex-Army pistols. Several thousand new pistols were purchased from DWM in the 1920s, chambered in 7.65mm as the



Versailles restrictions forbade the manufacture of new 9mm weapons. These were re-barrelled to 9mm in 1928–30, and the police adopted the 9mm P 08 as their standard weapon.

P 08s could be part-disassembled for cleaning with a live round still in the chamber, which then fired from any pressure applied to the trigger sear bar. The Army relied on training to avoid this problem, but the Prussian Landgendarmarie fitted their pistols with two safety devices to prevent accidental discharges after August 1933. The first device was the Schiwy sear safety, a simple modification adding a spring-loaded lever to the sear bar. The spring was normally held down by the side-plate, but when the pistol was disassembled the spring opened, allowing a pin to lock the sear bar in place and prevent firing. The second device was a Walther magazine safety using a spring-steel component inside the left grip panel. This was normally held down by the magazine body, but without the magazine, it moved outwards to block the trigger. Both devices seem to have been installed by police armourers rather than at the factory. While the Schiwy safety remained in service to the end, the Walther safeties were removed or deactivated from May 1937. Police Lugers also had one distinctive accessory, a cone-shaped muzzle protector to prevent damage from careless or over-zealous use of the cleaning rod.

German police forces used Lugers from 1918 if they were able to obtain them, and the P 08 became the standard police pistol from 1928. In this photograph from around 1930, two suspects are searched at gunpoint. (Popperfoto/Getty Images)

Replacing the Luger

Although the Luger performed well during World War I, it was a complex weapon requiring high-quality machining, and consequently was expensive to produce. The German Army looked at replacing the P 08 with simpler weapons firing less powerful 7.65mm cartridges as early as 1927. Such weapons could use a simple blowback action with an unlocked breech, allowing considerable reduction in complexity and the cost of manufacture. The less powerful cartridge would mean a less effective weapon, but the Army no longer expected pistols to see much combat use, especially as some of their tactical roles were now filled by machine pistols.

Ultimately, the Army preferred to keep the full-power 9mm cartridge, but looked for a simpler, cheaper pistol to fire it. The Walther P 38 was adopted in 1938. As an eight-shot 9mm pistol, it offered similar performance to the P 08, but took only 8.5 hours to

produce, versus 14 hours for the P 08. The P 38 was perhaps less 'pointable' than the Luger, but used the same double-action mechanism as Walther's earlier PP and PPK pistols, allowing safer carriage. A decocking lever let the user lower the hammer on the chambered round. Pulling the trigger cocked the hammer before firing the first shot, after which the pistol operated normally.

Getting the Walther production line up and running took time, however, with only 1,470 pistols delivered in 1938 and 24,500 in 1940. Since war had broken out in September 1939 and the intended conversion of the Mauser P 08 production line to make P 38s would cost months of production, the conversion was delayed, with the last P 08 being produced in September 1942. Just under 1.2 million P 38s were produced during World War II, and the pistol remained in use with the West German Army into the 1990s as the P1.

The Walther P 38 (2) replaced the Luger (4) as the primary German combat pistol, but smaller blowback pistols including the Mauser HSc (1) and Walther PP (3) were also favoured by personnel such as aircrew and senior officers who carried pistols but were less likely to use them in combat. Both of the latter two weapons were double-action pistols like the P 38, but chambered for the less powerful 7.65×17mm cartridge.



THE LUGER IN WORLD WAR II

While German propaganda emphasized the tanks of the Panzer divisions and the new airborne forces, German forces enjoyed little superiority in numbers or equipment during the early Blitzkrieg campaigns; their successes were due to superior organization and tactics. World War I-era Bergmann submachine guns had been replaced by newer MP 38 and MP 40 designs. These had similar performance, but the latter was designed for simpler manufacture and made largely from sheet-metal stampings rather than more expensive machined components. They were also the first weapons with folding stocks, allowing their use by troops who could not carry rifles. These new weapons were widely issued and took over some pistol roles, including those filled by the stocked LP 08.

The Army still needed huge numbers of pistols, however. Aside from the increased size of the armed forces – including large numbers of 'ethnic



German soldiers in a trench preparing for a 'night attack' in what appears to be a posed photograph. The first man holds his P 08 left-handed to throw a stick grenade better with his right, something described in wartime accounts. (George Rinhart/Corbis via Getty Images)

Germans' from the conquered territories – new technologies increased the number of troops whose duties prevented them carrying rifles, such as tank crewmen and pilots. Meanwhile, brutal German behaviour in the Balkans and Soviet Union led to thousands of partisans operating behind German lines, so even rear-echelon troops might need to defend themselves at any time.

Scale of issue for pistols varied greatly according to arm of service. Panzer units generally issued each crewman a pistol, plus one MP 40 submachine gun per vehicle. Weapon and equipment scales changed as the war progressed; generally speaking, sections became smaller but fielded more automatic weapons as Germany substituted firepower for manpower. The February 1941 infantry company may be regarded as typical, and stipulated 47 pistols in total. The 20-man headquarters had four pistols – one for the company commander, plus one each for the three anti-tank-rifle gunners in the eight-man anti-tank-rifle section. Each of the three 49-man platoons was issued 12 pistols. The platoon commander and platoon NCO both carried pistols, while each of the four ten-man sections had an NCO armed with an SMG or rifle, a machine-gunner and assistant/loader with a pistol each plus an MG 34 machine gun, and seven riflemen. The three-man light-mortar team included two pistols for the mortar gunner and loader, plus a rifle-armed leader. The 23-man support detachment included seven pistols – one each for the sergeant-major commanding the detachment, the medical orderly and the armourer, plus one for each of the four drivers looking after the eight horses which pulled the company's two baggage wagons and field kitchen.

Although the Walther P 38 had been adopted before the war, this endless demand kept the Luger in full production until September 1942, and the large numbers already in service remained in use until the end of the war. Germany was also forced to use 'substitute pistols', especially to make up the huge equipment losses at Stalingrad, where an entire army surrendered. These included Browning GP 1935 and Radom wz. 35 pistols manufactured in captured factories in Belgium and Poland, various



ABOVE LEFT

German machine-gunners carried pistols throughout both world wars, even after the MG 08 was replaced by the lighter MG 34 and MG 42. Here, a machine-gun crewman from SS-Regiment *Germania* is pictured in France in 1940, keeping his finger safely outside the trigger guard of his P 08. He carries the tripod for an MG 34 machine gun on his shoulder. (© IWM MH 225)



ABOVE RIGHT

A German soldier with a P 08, apparently wearing improvised winter camouflage on the Eastern Front during World War II. Although replaced by the Walther P 38 during that conflict, the Luger remained the iconic German pistol. (Bundesarchiv, Bild 101-004-3645-07 / photo: Muck, Richard)

7.65mm pocket pistols, and even Astra 600 pistols purchased from Spain. Even the P 38 could not be made quickly enough, and simple stamped-metal ‘*Volkspistolen*’ were being developed even as Germany surrendered in May 1945.

Luftwaffe Lugers

Aircrew were issued pistols for personal defence if shot down over enemy territory; cramped conditions in aircraft cockpits meant many preferred smaller pistols such as the Mauser HSc to the Luger in its bulky clamshell holster, especially in the West, where captured crewmen merely faced becoming prisoners of war. Aircrew in the East could expect much more brutal treatment, and were more likely to carry more powerful sidearms.

Almost all Krieghoff Lugers went to the Luftwaffe, though since they only produced 10,000–12,000 pistols and the Luftwaffe had 186,000 pistols issued or in store by 1940, clearly most Luftwaffe P 08s came from other sources. Most Luftwaffe-marked Lugers were not issued to aircrew, but to the airborne troops (the *Fallschirmjäger*), the Luftwaffe field divisions formed from surplus ground crew and support personnel or to anti-aircraft units, all of whom came under Luftwaffe control rather than Army control.

Although the Soviets had experimented previously with airborne troops, the Germans were the first to take advantage of their tactical possibilities on a significant scale. The *Fallschirmjäger* achieved notable successes during the early Blitzkrieg operations, neutralizing Fort Eben-Emael in Belgium and capturing airfields and other strategic points in the



FAR LEFT

Prominently displayed in this World War II-era photograph, the *Pistolentasche* (literally ‘pistol case’) 08 had a moulded bucket top for rain protection. The holster was a tight fit, so a short lifting strap helped to draw the pistol. The spare magazine fitted in a pouch on the spine, though the P 04 and LP 08 had a cleaning-rod pocket there instead. Originally carried on a shoulder strap (though most were modified to fit a belt as well), the holster for the P 04 had a simple flap rather than the rainproof bucket top of the P 08 holster, and a longer body; the wooden shoulder stock attached to the holster rear when not in use. Leather gear was originally brown, then produced in black from September 1915. The German Navy generally re-dyed existing holsters or boot-polished them black, but the German Army was otherwise occupied, and rarely did likewise. (Bundesarchiv, Bild 101-008-2749-13 / photo: Jäger)

campaigns in Norway, the Low Countries and Greece. The standard RZ1 and later RZ16 parachutes issued to German airborne troops were inferior to Allied parachutes, however, because the German parachutes’ canopy lines did not meet to form twin risers linked to each shoulder, but converged to a single attachment point between the shoulder blades. This made the parachute much less controllable, making it difficult to carry weapons while parachuting and usually resulting in the jumper landing hard on his front, thus increasing jump injuries. German airborne troops thus had their rifles and light machine guns dropped in separate weapons containers, rather than jumping with personal weapons and using equipment containers only for heavier weapons as Allied paratroopers did. An MP 40 submachine gun could be tucked under the parachute harness with the stock folded, but the weapon’s short effective range meant only one in four *Fallschirmjäger* carried an MP 40. Each man was therefore issued a pistol to defend himself until he could retrieve his primary weapon from the weapons container dropped with his section.

The standard leather load-bearing equipment was covered by a jump smock (nicknamed the *Knochensack* or ‘Bonesack’) to avoid snagging the parachute lines. This prevented a *Fallschirmjäger* from drawing his pistol from its holster quickly, so the smock had a special pocket to hold the pistol during the jump, allowing him to access it even before disentangling himself from his parachute. The problems with such arrangements were clearly shown during the battle of Crete in May 1941. The airborne troops were to seize several key airfields, allowing reinforcements to be flown in. In the event, many *Fallschirmjäger* found themselves pinned down on their landing zones by unexpectedly strong Allied resistance, and were unable to reach their weapons containers and fight back effectively. The consequent heavy German casualties convinced Hitler that airborne operations were too costly once they lost the advantage of surprise. The *Fallschirmjäger* became elite infantry instead, abandoning jump training completely from mid-1944.

LEFT

Luftwaffe men after an exercise. The foreground figure’s P 08 hangs on a lanyard – possibly improvised, but we cannot see it – which was sometimes used as an alternative to a holster when quicker access was required. The bag around his neck probably holds grenades. (Bundesarchiv, Bild 101-610-1971-35A / photo: Boback)





Crete, May 1941 (previous pages)

The Germans used airborne forces very successfully on a small scale during the early Blitzkrieg campaigns in Europe and during the invasion of mainland Greece. In May 1941, they launched a much larger airborne operation – *Unternehmen Merkur* (Operation Mercury), the invasion of Crete. The German plan was for *Fallschirmjäger* to seize the airfield at Maleme and the smaller airstrips at Heraklion and Rethymno, which would then be used to land follow-on forces, along with reinforcements delivered by amphibious landings. Aided by signal intercepts, the Allied defenders had correctly anticipated the main German objectives, and were able to hold the airfield and inflict heavy casualties on the airborne troops. Landing with their weapons in separate containers, the lightly armed German paratroopers found themselves at a serious disadvantage, and took heavy casualties very quickly. Many of the survivors were pinned down by Allied fire and unable to recover their weapons or organize themselves. Several were even beaten to death by Cretan civilians before they could disentangle themselves from their parachutes.

Here, three *Fallschirmjäger* shelter from Allied rifle fire; a fourth has become a casualty while trying to retrieve one of the containers holding their weapons, which has landed in open ground. The rifleman nearest the viewer holds his P 08 while calling the rest of his section together; paratroopers jumping from the same aircraft typically landed in a rough line 50–100m apart. The middle man has a Walther P 38, unusual but not unknown at this point in the war. The third man fires an MP 40 submachine gun; this was compact enough to be carried beneath the parachute harness with the stock folded, but only one *Fallschirmjäger* in four was issued with one, due to the weapon's short effective range. All three men still wear the protective kneepads – and in the case of the MP 40-armed man, the protective gloves – issued to prevent injury during rough landings. They have taken off their long jump smocks, which covered their equipment harnesses during the jump, and put their smocks back on again with the equipment worn on the outside, to allow easier access to weapons and ammunition.

LUGERS AFTER 1945

World War II ended with Western Europe liberated, but with its armed forces eliminated by Nazi occupation or dependent on weapons supplied by the victorious Allies, which would not continue indefinitely.

France

France was theoretically among the 'victorious' powers, but her pre-war armaments had been seized during the occupation, and German troops in France surrendered their weapons to US or British forces, rather than French ones. Meanwhile, the small 'Free French' forces were largely equipped with US weapons provided as military aid. Bringing pre-war French designs back into production was unrealistic, because they were long outdated even if the tooling remained. French forces therefore needed a short-term source of weapons while newer French-designed weapons were developed and produced.

Germany had been divided into four occupation zones by the Allied Powers, and fortuitously the almost-intact Mauser plant at Oberndorf was in the French zone. This was put back into operation to produce weapons for the French Army. Most were Kar 98k rifles (48,000) and P 38 pistols (35,000), but the plant also held stocks of P 08 parts pre-dating the switch to P 38 production. Some of these were assembled into Lugers for presentation to Allied officers or sale to US soldiers as souvenirs, including a few 'Artillery Models' using legacy barrels and sights transferred from DWM to Mauser before the war, along with the



German officers surrendering their sidearms in North West Europe in 1945, giving an idea of how many war-surplus pistols would soon be available. (George Rodger/The LIFE Picture Collection/Getty Images)

production-line tooling. Around 3,500 P 08s were also produced for the French Army, however.

The Soviets protested that resuming arms production in Germany was explicitly forbidden in wartime agreements between the Allied Powers. The French thus stripped the factory of anything usable before destroying the buildings in late 1948, though production had ceased well before then. The stocks of parts at the plant included very few Luger magazines, so 10,000 new P 08 magazines (roughly three per pistol) were manufactured at the Levallois arsenal in France. To facilitate use of the P 08s produced for the French Army, 5,000 copies of a French manual for the pistol were also printed in 1950–51.

The French P 08s saw service in the First Indochina War (1946–54) as France tried unsuccessfully to recover her Far Eastern colonies, which had been occupied by the Japanese during World War II. French forces were opposed by the communist Viet Minh, who had resisted the Japanese during the war and wanted an independent Vietnam rather than the reimposition of French colonial rule. Other P 08s saw service in the Algerian War (1954–62) as France tried to hold onto its North African colony, with equal lack of success. The opposition Algerian Front de Libération Nationale also used Lugers, purchased as war surplus from Czechoslovakia and Yugoslavia.

The P 08s were replaced in French Army service by the French-made 9mm MAC Mle 1950 pistol from 1953, and most remaining examples were transferred to the paramilitary Gendarmerie. Some appear to have

A French irregular with a P 08 escorts a Luftwaffe prisoner during the liberation of Chartres, France, in August 1944. French forces needed any weapons they could obtain in the years after the war, and issued German pistols into the 1950s. (Keystone/Hulton Archive/Getty Images)



Two female Front de Libération Nationale guerrillas with a P 08 during the Algerian War (1954–62). Lugers often appeared among the weapons of post-war insurgent groups, either purchased as surplus or supplied as military aid by communist governments. (Keystone-France/Gamma-Keystone via Getty Images)



been transferred to the Austrian Army in the early 1950s. Others were still held in French reserve stocks into the 1970s, although the author is not aware of any active use or issue until they were finally disposed of in the late 1970s, with many being deactivated and sold as film props or to collectors.

French P 08s are occasionally encountered with distinctive cast-aluminium grips, similar to those on so-called ‘Grey Ghost’ P 38s also manufactured for the French.

East Germany

After the war, the Soviet authorities created an entirely new police force in their occupation zone, because they regarded members of the pre-war German police as probable former Nazi sympathizers. The new force was known as the Volkspolizei (‘Peoples’ Police’), usually abbreviated to ‘VoPo’. The VoPo were initially armed with legacy Nazi-era pistols, including captured military 9mm P 08 and P 38 pistols and 7.65mm Walther PPs from former police stocks. Many of the military pistols were badly worn or in poor condition, so a refurbishment programme stripped the less salvageable guns for spare parts to rebuild and maintain the better examples. Some components were in short supply, however. There was a particular shortage of barrels in good condition, due to the harsh corrosive primers and sintered bullets used in wartime ammunition (see page 69). The Ernst Thälmann plant in East Germany therefore manufactured new barrels, magazines and other components.

The refurbished pistols were also re-blued and fitted with brown plastic/resin grips. Most Nazi-era printed military material was regarded as suspect, so new manuals were printed in the 1950s. A very small number of new VoPo Lugers (possibly fewer than 100) were made in 1953, apparently using tooling from the Krieghoff plant at Suhl, which was in the Soviet occupation zone. If the plan was to bring the P 08 back into production, the idea seems to have been dropped, either for practical reasons, or because of the agreement between the wartime Allies not to resume weapons production in Germany after the war.

The last Lugers were withdrawn from VoPo service in the 1960s, and replaced with standard Warsaw Pact designs such as the Makarov PM. Some were transferred to anti-Western groups such as the Palestine Liberation Organization, or sold on the commercial market.

Norway

Norway adopted the M/1914 semi-automatic (a licenced copy of the .45 Colt 1911), which remained in production for German forces during the occupation (1940–45). Both the numbers on hand in 1945 and the capacity of the production line were low, however. The large German occupation force (consisting of 400,000 troops for a population of 3 million Norwegians) surrendered in an orderly manner after the capitulation of Germany, leaving the Norwegians with huge numbers of P 08 and P 38 pistols, among other weapons. Because these German pistols far outnumbered the remaining M/1914s, the Norwegians made the pragmatic decision to adopt them as their standard pistols.

Norway became a founder member of NATO in 1949, because its traditional policy of neutrality had failed to prevent wartime occupation. The P 08 thus acquired a NATO stock number: NSN 1005-25-102-7195: Pistol, 9mm, M/08 Luger. These pistols remained in service with the Norwegian Army and Home Guard into the 1970s. Spare parts and loading tools were manufactured locally by the Kongsberg arsenal and Norwegian-language manuals were printed. The German leather holsters acquired with the pistols remained in service, with the belt loops replaced by a wire hanger to attach them to the surplus US webbing used by the Norwegians.

The Soviet Union

The Soviets captured vast quantities of German equipment on the Eastern Front, including tens of thousands of Lugers. The Soviets never issued Lugers to their own troops, but large numbers were reconditioned (usually with a thick, dull re-blueing, and often with little attention to matching the serial numbers of parts) and stored against future need. Most were marked with an electro-pencilled 'X' captured property mark and some were refitted with cheap Soviet-made black plastic grips. These 'Russian Capture' Lugers were sometimes supplied as aid to various communist and revolutionary organizations. Most remaining examples were released onto the market in the 1990s, after the fall of the Soviet Union.



IMPACT

The Luger evaluated

THE LUGER IN CONTEXT

German officer William Lubbeck commented that while he fired his Luger only a few times in battle, he found it to be an effective pistol that was reasonably accurate to 20–30m. The Luger inflicted relatively few casualties on the enemy, however. The same is true of most pistols during 20th-century wars; the pistol is generally carried for close-quarter self-defence, not to compete with primary weapons such as rifles. The Luger was accurate for a pistol, but shooting on a range is very different from shooting in combat, and the difference is more notable with pistols – fired one-handed at close range – than with long guns, supported by both hands and the shoulder. Overall, it was popular with users, and many men not issued a Luger acquired one if they could. But how does the P 08 fare when judged alongside its contemporaries? The author selected four pistols that also saw service during World War I, and assessed their performance alongside that of the Luger. Four World War II-era pistols were then selected – including the Walther P 38, the Luger’s successor in German service – and compared to the P 08.

The Luger and its World War I contemporaries

The most dated comparator in 1914–18 was the French Mle 1892 revolver, commonly but incorrectly referred to as the Lebel. Next came the Russian Nagant M1895, a revolver with an unusual action where cocking the weapon not only rotated the cylinder but also moved it slightly forwards, so the tapered front of the fully enclosing cartridge case seated into the rear of the barrel. The last revolver was the British .455 Webley, issued in several different marks. Finally, Germany’s Austro-Hungarian ally also adopted a semi-automatic pistol just before the war, in the form of the Steyr M1912.



The Luger's World War I rivals – the British .455in Webley (1), the French Mle 1892 (2), the Russian Nagant (3) and the Austro-Hungarian Steyr M1912 (4). This Webley is actually the definitive 'Sealed Pattern' kept in the Pattern Room as a reference example. (© Royal Armouries PR.3276, PR.4721, XII.4122 and PR.2016)

The first attribute to be assessed is accuracy. All five pistols have simple fixed sights, but are reasonably accurate over short pistol ranges. Both the Mle 1892 and the Webley could be fired single-action, cocking the hammer with the right thumb before firing with a light trigger pull for optimal accuracy. Alternatively, the user could simply pull the trigger both to cock and to fire the pistol. This heavier double-action trigger pull tended to reduce accuracy, but was obviously more practical in close fighting. The Nagant was produced both as a single-action-only model for enlisted men, and a single-/double-action model for officers, though the double-action trigger pull was notoriously heavy, making it the weakest in this group. The Steyr was accurate enough for most purposes, but lacked the raked grip which gave the Luger a natural 'pointability' the other guns lacked, complementing the German pistol's generally superior accuracy.

Hitting power was also assessed. A pistol bullet needed to put a man down quickly and effectively, but in practice this depended on where the round hit as much as the bullet itself. Even so, the Mle 1892 was clearly the weakest in this area, because its 8mm cartridge was notably underpowered even at close range. The Nagant was better, because eliminating the gap between cylinder and barrel prevented the loss of muzzle velocity usual to most revolver designs and coincidentally made it one of the few revolvers which could be silenced effectively. The Steyr's bullet was very close to the Luger ballistically, but the clear winner in terms of hitting power was the Webley, a real man-stopper with its big, heavy .455 bullet.

Speed of reloading is another key factor. Although it held seven shots rather than six, the Nagant was by far the slowest to reload, because spent cases had to be ejected individually through a loading gate in its fixed cylinder before fresh rounds could be inserted. The cylinder of the Mle 1892 swung out on a crane, and pressing the central ejector rod expelled all the fired cases before six new rounds were loaded individually. While most swing-out cylinder revolvers open to the left, the Mle 1892 opens to the right; the author found reaching across the pistol to reload awkward. The Webley was the fastest revolver to reload, featuring a top-break cylinder that automatically ejected the spent cases as it opened. Even so, it took twice as long to reload as changing the magazine of a semi-automatic. The Steyr was loaded by pulling back the slide, locating an eight-round charger into a guide in the top and stripping the rounds down

into a fixed internal magazine. Aside from being slightly slower than using the Luger's detachable box magazine, there was no quick way to reload a part-empty Steyr pistol. Whereas one could simply swap a part-empty Luger magazine for a full one, reloading the Steyr either required using the magazine catch to dump the remaining rounds and inserting a new full charger, or feeding individual loose rounds into the fixed magazine.

Safety and ease of carriage were also assessed. The Steyr was a little heavier than the Luger, while the Mle 1892 and the Nagant weighed the same but were slightly longer and their cylinders made them bulkier than the relatively flat German pistol. The Webley was by far the biggest and heaviest of the pistols, however. Pistols often had to be carried holstered for long periods, then brought into action quickly. The three revolvers could all be carried safely loaded, leaving the chamber under the hammer empty for maximum safety and then brought straight into action by a double-action trigger pull without needing to release a safety catch. The Luger could be carried reasonably safely for short periods with chamber loaded and safety applied, but for longer carriage it was better to leave the chamber empty, even though this meant having to pull back and release the toggle to chamber the first round from the magazine before firing. By contrast, the slide of the Steyr automatically stripped the top round off the magazine as it went forward; the author – no expert on this pistol – is not aware of a way to carry it loaded but with the chamber empty. The user either had to depend purely on the safety catch on the left side of the frame – not a good option for long-term carriage – or carry the Steyr empty and load it when trouble arose, which was equally undesirable.

In conclusion, all of the pistols were reasonably well made, but the Mle 1892's weak cartridge and the Nagant's slow loading were significant weaknesses that knocked them out of any contest immediately. Equally, the Steyr M1912 was a good pistol for immediate use, but the concern over carrying it safely for a prolonged period really put it into third place behind the Webley and Luger. The author has fired – and likes – both of these two, but believes the Luger comes out top. It is more compact, lighter, holds two more shots, and can be reloaded in half the time. The Webley definitely has the major advantage of significantly greater hitting power, but as the British Small Arms Committee pointed out, the quick multiple hits achievable with the Luger are entirely adequate.

The Luger and its World War II contemporaries

The Luger remained the standard German pistol when World War II began, and several of the designs mentioned above soldiered on in second-line use. Most major armies had adopted new pistols since the previous war, however, often learning lessons from the Luger. The obvious comparator for the Luger is the pistol which replaced it, the Walther P 38. The US Colt 1911 was technically a World War I weapon, but the United States' late entry into that conflict means it is perhaps best considered here. The Soviet Union adopted the Tokarev TT-30 semi-automatic and then the very similar TT-33, while the British defied the trend by replacing the Webley with another revolver, the Enfield No. 2.

THE LUGER AND ITS CONTEMPORARIES						
Pistol (country of origin, date of adoption)	Calibre	Barrel length	Overall length	Unloaded weight	Magazine	Muzzle velocity
Reichsrevolver 79* (Germany, 1879)	10.6×25mm	210mm	310mm	1,040g	6-rd cylinder	205m/sec
Mle 1892 (France, 1892)	8×27mm	130mm	240mm	850g	6-rd cylinder**	225m/sec
Borchardt C93 (Germany, 1893)	7.65×25mm	190mm	350mm	1,310g	8-rd box	400m/sec
Nagant M1895† (Russia, 1895)	7.62×38mm	114mm	235mm	800g	7-rd cylinder	272m/sec
Mauser C96 (Germany, 1896)	7.65×25mm	140mm	312mm	1,130g	10-rd charger	425m/sec
Ordonnanzpistole 1900 (Switzerland, 1900)	7.65×21mm	120mm	237mm	890g	8-rd box	350m/sec
P 04 (Germany, 1904)	9×19mm	150mm	267mm††	1,010g††	8-rd box	345m/sec
P 08 (Germany, 1908)	9×19mm	100mm	218mm	885g	8-rd box	335m/sec
Colt 1911 (United States, 1911)	.45 ACP (11.43×23mm)	127mm	210mm	1,100g	7-rd box	251m/sec
LP 08 (Germany, 1912)	9×19mm	200mm	317mm††	1,105g‡	8-rd box or 32-rd drum	375m/sec
Webley .455 Mk V‡‡ (UK, 1913)	.455 Webley (11.6×19.3mm)	106mm	286mm	1,100g	6-rd cylinder	190m/sec
Steyr M1912 (Austria–Hungary, 1914)	9×23mm	130mm	216mm	990g	8-rd charger	335m/sec
Tokarev TT-30 (Soviet Union, 1930)	7.62×25mm	118mm	194mm	854g	8-rd box	450m/sec
Enfield .38 No. 2‡‡ (UK, 1932)	.38 Enfield (9.2×20mm)	127mm	260mm	765g	6-rd cylinder	189m/sec
Browning 1935 (Belgium, 1935)	9×19mm	119mm	197mm	880g	13-rd box	335m/sec
Walther P 38 (Germany, 1938)	9×19mm	125mm	216mm	800g	8-rd box	365m/sec
* Gate-loaded, single-action; the Reichsrevolver 83 had a 150mm barrel. †† Excludes the shoulder stock. ** Swing-out cylinder. ‡ Weight with empty box magazine and no shoulder stock. † Gate-loaded; single- and double-action versions were produced. ‡‡ Top-break, double-action.						



Four of the Luger's comparators during World War II, all from the Small Arms School Collection. The Soviet Tokarev TT-33 (1) chambered a cartridge derived from the original Borchardt round. The British Enfield No. 2 Mk 1* (2) replaced the .455 Webley in the 1930s, and was the last major military revolver. The Walther P 38 (3) was intended to replace the Luger, but both weapons remained in German service until 1945. Finally, the .45 ACP Colt 1911 (4) was perhaps the most successful semi-automatic of all time, serving with US forces into the 1980s.

Again, accuracy is the first characteristic to be assessed. The pistols all had simple fixed sights. The original Enfield could be thumb-cocked for more accurate single-action shooting, but most examples had hammer spurs removed and could only be fired double-action, doing little for accuracy. The Tokarev's slab-like grips were often poor quality and set too perpendicular to the frame for instinctive shooting, although its high-velocity cartridge had a helpfully flat trajectory. Similarly, the author found the P 38's bulky, upright grip did not aid accuracy, whereas the Colt shared the Luger's raked grip angle, making these two pistols easy and natural to shoot.

Hitting power was the next aspect to be considered. The P 38 and Luger used the same 9mm round, so there was little to choose between them in hitting power, and wartime experience showed the 9mm round was entirely adequate for a pistol. The 7.62mm Tokarev round was effectively the original Borchardt cartridge, albeit in a rather more powerful loading. It fired lighter bullets at a higher velocity than the 9mm pistols, giving roughly similar overall wounding performance in most cases. The poorest of the group in terms of hitting power was the Enfield. After 1918, Britain replaced the big Webley with a lighter, less powerful pistol, hoping it would be easier for inexperienced shooters to use. A lighter jacketed bullet replaced the original heavy lead one just before World War II due to legal concerns, however, and the pistol acquired a reputation for poor stopping power. By contrast, the .45 ACP round used in the Colt 1911 was generally regarded as an excellent 'man-stopper'; one reason it remained in service so long was US reluctance to switch to the 9mm round, which was perceived to be less powerful.

Turning to speed of reloading, although the Colt 1911's box magazine held seven rounds compared to the eight held by the other semi-automatics, there was little to choose between them in speed of reloading. By contrast, while the Enfield's top-break cylinder and automatic ejection of spent cases made it a quick loader in revolver terms, it was unquestionably outclassed by the semi-automatics.

Safety and ease of carriage were also considered. For all its other flaws, the Enfield was easy to carry loaded, leaving the chamber under the hammer empty for maximum safety and still firing just by pulling the double-action trigger without needing to release a safety catch. The Luger and Colt could be carried reasonably safely for short periods with chamber loaded and safety applied, while for longer carriage the chamber could be left empty until the slide or toggle was pulled back and released to chamber the first round before firing. The best gun for safe carriage was the P 38, because its decocking lever allowed the hammer to be lowered safely, after which the pistol could be fired simply by releasing the safety catch and pulling the trigger. By contrast, the Tokarev lacked a proper safety catch, depending on a rather insecure half-cock notch in order to carry the pistol with a round chambered.

To sum up, the Enfield No. 2 was clearly the weakest of the pistols discussed here, being outclassed on most criteria. The Tokarev was reasonably effective, but felt rather unfinished and had poor safety arrangements. From a purely technical viewpoint the Walther P 38 was a

The Luger as battlefield souvenir

Allied soldiers favoured Lugers as souvenirs, while British troops often preferred them to their own pistols, in both world wars. When World War I infantry officer Charles Carrington found a dead German officer, he took his pistol, believing it to be superior to the Webley he and his colleagues carried (Carrington 1991: 195). David Render, who served as a tank commander in the British Army almost 30 years later, recalled that it had been a



Although the United States never adopted the Luger – despite coming very close to doing so – this World War I US Army soldier has managed to acquire one as a souvenir. (Tom Laemlein/Armor Plate Press)

particular ambition of his to obtain a Luger; he praised its smooth action and believed it was a better pistol than the Enfield revolver (Render 2016: 138). This ‘souvenir hunting’ did not end when the fighting did. In Berlin during 1945, British tanker Bill Bellamy recalled one US serviceman showing off a Luger he had bought for 100 cigarettes from a Soviet soldier (Bellamy 2005: 219).



Lugers were popular souvenirs among Allied military personnel, and might be purchased or traded as well as captured personally. Here a lieutenant of the US 9th Air Force inspects a captured German Luger pistol at a base in France in January 1945. An M1 carbine hangs on the wall behind him. The US Army issued these light semi-automatic weapons from 1942 to arm men whose duties prevented them carrying a full-sized rifle, and who might have been issued pistols in other armies. The carbine offered better range and accuracy than a pistol, and folding-stock versions were issued to many paratroopers. The selective-fire M2 version which appeared in October 1944 meant it could also replace the submachine gun. (Photo12/UIG/Getty Images)

‘better’ pistol than the Luger, though having fired both, the author subjectively preferred the Luger due to its better ergonomics. Even so, range shooting is different from carrying a pistol every day, where the Walther was strongest. In the author’s opinion, the Colt 1911 was probably the best of the pistols assessed here, and certainly his personal preference. It shared the Luger’s advantages of natural pointability and

quick reloading, but had two key advantages – a big, heavy cartridge that left nobody in doubt about its stopping power, and John Browning's simple, rugged dropping-link action. It carried one round less in its magazine, and was somewhat bigger than the Luger. Overall, though, it was a superior weapon that remained in US service until 1986.

TECHNICAL IMPACT

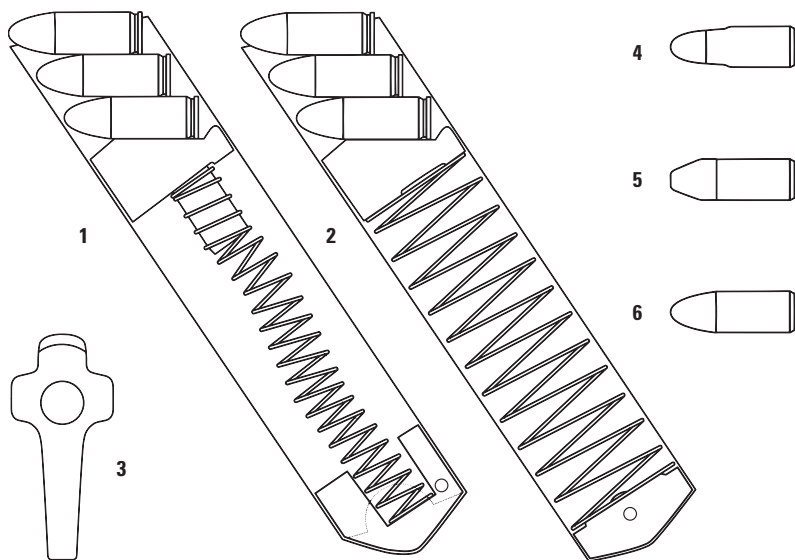
The Luger had a profound impact upon pistol design. The advantages of placing the magazine in the grip seem obvious in retrospect, but many early pistol designs followed revolver lines and placed it before the grip. Some even did this after the Luger appeared, and were outcompeted by weapons following Luger's lead. Equally, the detachable box magazine seems so simple, and has become so universal, that we forget it was a radical innovation when introduced and that the Luger's initial competitors loaded from chargers, rather than magazines. Even so, it was the 9mm Parabellum (9×19mm) round for the P 08 that would be the Luger's most lasting influence.

Luger magazines

The detachable box magazine was one of the most important innovations in the Borchardt and Luger designs, setting them apart from other early semi-automatic pistols, which loaded from rifle-style chargers. The Luger magazine was a complex and relatively expensive feature, however – each cost 2.5 Marks, so the pair supplied with each P 08 made up 10 per cent of the weapon's total cost. Magazines were interchangeable between pistols, but those supplied with each pistol were numbered to it, like other small parts. Each P 08 was issued with a single spare magazine, carried on the holster spine. P 04s and LP 08s were issued with two spare magazines each, carried in a separate two-cell leather magazine pouch.

Early magazines were assembled from seven parts including two stamped-steel sides and a machined walnut base with dished roundels on the bottom. These served as finger grips, and made it obvious the pistol had a magazine in it, for safety reasons. The feed lips were reshaped slightly with the change to the New Model, to handle straight-sided 9mm bullets better. The wooden magazine bases were replaced with aluminium ones from 1925, then black plastic ones during World War II, to conserve strategic materials. Existing magazines continued in service on both occasions, however. German magazine bodies were originally nickel-plated, though late World War I magazines were blued instead, or even plain steel. Magazines reverted to nickel in the 1920s, until Mauser reintroduced a blued finish in 1936–37.

A stronger and more reliable Haenel magazine (often incorrectly referred to as the 'extruded' or 'monolithic' type) replaced the original from 1935 for the police, and from 1939 for the armed forces. Rather than being crimped from two separate halves, this was stamped from a single sheet, folded to shape around a metal die and welded along the rear seam, which was then polished smooth.



Here, the original Luger magazine (1) is shown alongside the later Haenel type (2). The magazine follower is pushed upwards by a spring in both cases, but the wider Haenel spring was much less likely to distort under load as it was guided upwards by the inner walls of the magazine. The hole in the loading tool (3) was slipped over the magazine-follower button (not shown) to depress the magazine follower for easier loading. The original 7.65×21mm Parabellum round (4) was necked out to create the 9×19mm Parabellum round, here shown with both early conical bullet (5) and later round-nosed bullet (6). As the cases were the same size, the magazines for both calibres were identical.

The old cylindrical spring (which distorted under load and bulged sideways rather than pushing straight upward) was replaced by a new and stronger oval spring, guided smoothly upwards by the interior walls of the magazine. Aside from feeding cartridges more smoothly, the new magazine was actually cheaper to manufacture, as it eliminated or simplified several components.

P 04 magazines had three concentric rings machined into the wooden grip roundels, but after 1916, P 04s were issued with standard P 08 magazines. DWM-supplied Swiss magazines had nickel-plated base inserts for better visibility, while Swiss-made ones had wooden bases, replaced with hard plastic in the value-engineered Modell 06/29. The Swiss experimented with extended 16-round straight magazines, but these never entered production. Dutch KNIL Lugers used special magazines which disassembled easily, as frequent cleaning was needed in the tropical climate of the East Indies.

Several minor variations of the World War I *Trommelmagazin* for the LP 08 exist, with later versions possessing strengthening ribs and improved folding winding levers. These remained in use into the 1920s for the Bergmann MP 18. It was difficult to load after the first 10–12 rounds, and a loading tool was supplied, along with sheet-metal dust covers to keep grit out when not attached to the weapon. The winding handle served as a simple cartridge counter as it moved past numbers (12, 17, 22, 27 and 32) stamped into the drum exterior, showing how many rounds remained.

9mm Parabellum ammunition

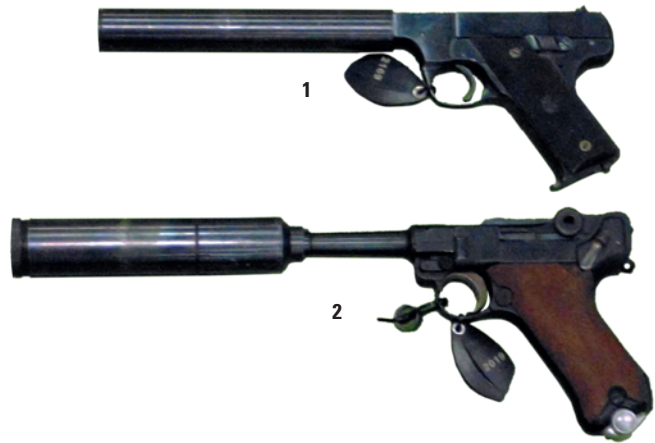
When the Luger appeared, almost every model of handgun required a unique cartridge. The revolver rounds in service at the beginning of the 20th century were ultimately dead ends, because their rimmed design hampered feeding from box magazines and prevented use in submachine guns. Three military semi-automatic pistol cartridges were produced in truly significant numbers. Only the American .45 ACP had no link to the

Borchardt/Luger, but was the least important because the United States made limited use of submachine guns. The 7.65×25mm Borchardt round was copied by Mauser for the C96 semi-automatic. This was popular in Russia, and the Soviet Army used its cartridge (with a more powerful propellant loading) for its own Tokarev TT-30 and TT-33 semi-automatics. As the standard Soviet cartridge, the 7.62×25mm was then used in millions of PPD, PPSH-41 and PPS submachine guns during the Great Patriotic War and afterwards, along with innumerable Chinese and other copies. Meanwhile, the 9mm Parabellum (9×19mm) round for the P 08 remained the German standard through both world wars, and was adopted by the British for submachine guns as their own rimmed revolver cartridges were unsuitable. It later became the standard NATO pistol round.

German 9mm service ammunition was packaged in cardboard boxes, each box holding 16 rounds. This would fill the two magazines issued with each P 08, while two boxes filled a drum magazine. A total of 52 boxes (832 rounds) fitted into a heavy cardboard sleeve with a shoulder strap, while five sleeves fitted into the standard wooden Patronenkasten 88 ammunition crate, for a total of 4,160 rounds per crate. Both sleeve and crate were standard designs originally intended for 7.92×57mm rifle ammunition, and thus held odd numbers of 9mm rounds. Tropical ammunition boxes had sealed tinplate liners.

The initial 9×19mm service round used a jacketed bullet of truncated-cone shape, with a flat tip. During World War I, some German soldiers were concerned that Allied soldiers might regard these flat-nosed bullets as 'dum-dum' rounds intended to cause especially severe wounds, and take revenge on men captured carrying them. This perceived problem needed to be addressed for morale reasons, and the Army issued new bullets with a slightly pointed round nose from March 1916. The Navy followed suit from October 1918, more than two years later. Remaining stocks of old conical bullets were used up in pistol practice away from the front line. It has been suggested this change happened because the flat-nosed type did not function well in drum magazines, but the change occurred before drum magazines were introduced.

Ammunition production required large amounts of brass and lead, both of which were in short supply. In peacetime or training, spent brass cartridge cases were collected after pistol practice for reuse, but this could only be a limited solution. Germany experimented with steel cartridge cases during World War I, but these suffered problems with splitting and never became standard for pistol ammunition. Once the Nazis came to power, they wanted Germany to be self-sufficient and steel cases were introduced for 9mm cartridges from 1938. The first examples were electrolytically plated with a thin copper layer against corrosion, but from 1940–41 this was replaced with cheaper lacquer. The steel-cased cartridges functioned well with MP 38/40 submachine guns and the P 38 pistol, but could cause extraction issues in the P 08, as the steel cases were less ductile than brass ones. They expanded on firing, but did not shrink fully back to their original size afterwards, and could become stuck against the Luger's tighter chamber walls. The problem was known and understood, but not regarded as significant because there were significant stocks of brass-cased ammunition



(which comprised 50 per cent of 9mm ammunition production as late as 1941) and the Luger was scheduled for replacement by the P 38 anyway. By 1942, production of brass-cased 9mm cartridges had fallen below 5 per cent of the total, and a 1943 directive reserved remaining stocks of brass-cased cartridges for use with the P 08, which would clearly remain in service for the foreseeable future. Experimental aluminium cartridge cases were produced to reduce ammunition weight for *Fallschirmjäger*, but development halted with the end of their airborne role.

From 1941, dwindling lead stocks drove the development of the Pistolepatronen 08 mE, with a solid iron core (*mit Eisenkern*) wrapped in a thin layer of lead and inserted into the conventional bullet jacket. This became standard from 1943, with the lighter bullet weight (6.4g rather than 8g) offset by increasing the powder charge, and thus muzzle velocity. From 1943 this was supplemented by the 08 SE round, which replaced the whole bullet with a projectile made from sintered iron. This compressed iron fillings into a bullet shape then heated them until they welded together to form a solid projectile without actually reaching melting point, retaining just enough elasticity to take the rifling of the pistol barrel. While this saved lead, sintering furnaces used equally scarce gas, thus merely substituting one scarce commodity for another.

World War II British and post-1945 NATO 9mm ammunition was generally optimized for submachine guns, with a more powerful propellant loading which could damage a Luger with sustained use.

ABOVE LEFT

Lugers sometimes turn up in unexpected places. Here, Captain G.C.S. Montanaro of 101 Troop, Special Service Brigade carries an LP 08 with drum magazine during demonstrations for HM King George VI of combined-operations training at Inverary, Scotland, in October 1941. (© IWM H 14599)

ABOVE RIGHT

Several Lugers in British government collections were fitted with silencers, apparently for use by agents of the Special Operations Executive, which was set up in 1940 to conduct sabotage and support resistance groups in Axis-occupied territories. Here, a .22 LR High Standard semi-automatic (1) is shown above a silenced Luger (2); both items are from the Small Arms School Collection.

COMMERCIAL IMPACT

DWM started producing pistols for commercial sale immediately after the initial Swiss contract was completed in 1901, keeping the production line open until further military contracts could be secured. The first commercial pistols were very similar to the Ordonnanzpistole 1900, in 7.65mm calibre (‘.30 Luger’ to Americans) with 120mm barrels and grip safeties.

Manufacturing the Luger

The Luger was a complex weapon requiring components machined to precise tolerances, and setting up a production line to manufacture it was a significant undertaking. Only four production lines existed, some with several owners before finally being dismantled.

The first and most important was the DWM production line, established in 1900 after the company took on the firearms interests of Ludwig Loewe in 1896, including the Borchardt and Luger pistols. It was initially located in DWM's Berlin factory, and manufactured almost all the commercial- and foreign-contract Parabellum pistols, as well as the P 04 and long and short P 08s for the German Army. DWM became Berlin-Karlsruher Industrie-Werke (BKIW) in 1922. The DWM line was transferred to Mauser at Oberndorf in 1930, while the two companies were part of the same industrial conglomerate. It continued producing P 08s for the Army until 1942, when Mauser switched over to making P 38s. The remaining stock and tools were used by the French to produce a few pistols after the war, before the factory was destroyed as part of the post-war demilitarization process.

The second production line was installed at Königliche Gewehrfabrik Erfurt (Prussia's Royal Rifle Factory in Erfurt) in 1909–10. As a government factory, it produced P 08s and LP 08s exclusively for the Army until the end of World War I, when the provisions of the Versailles Treaty forced the closure of all four government rifle factories. In 1923 this production line moved to a private firm – Simson & Co in Suhl – which was selected to be the sole pistol supplier to the Reichswehr and also sold pistols commercially. As the Simson company was Jewish-owned, it was confiscated by the Nazis in 1934 and the Army P 08 contract was transferred to Mauser. The Simson production machinery was passed to the Krieghoff company, which refurbished the line and used it to produce 10,000–12,000 Lugers for the Luftwaffe in 1935–38. Why such a small contract was awarded to Krieghoff when Mauser was already in full production, or indeed why Krieghoff felt it was worth tooling up for, has never really been explained, and the company soon shifted to producing higher-priority automatic weapons.

The third production line was at Waffenfabrik Bern in Switzerland, built to produce pistols for the Swiss after commercial supplies from

DWM were cut off by World War I. It produced pistols until 1947, and the machinery and gauges were sold to Mauser in 1967, to resume Luger production for commercial sale in the United States. The fourth and last production line was apparently set up by Vickers in 1920 to produce M11 Lugers for the Dutch KNIL and disassembled afterwards, though it is possible that this line only completed part-finished DWM pistols.

A few pistols exist with markings showing manufacture at the Spandau arsenal, but documentary evidence shows no Lugers produced there, and the pistols themselves show strong signs of being faked. Before and during World War I, pistols were marked with their manufacturer and year of production, but from 1934, weapons produced for the German armed forces were marked with letter codes to designate manufacturer and year. The codes were intended to prevent enemy intelligence discovering production locations and numbers from captured weapons. These codes were amended several times; Mauser-made P 08s were marked 'S/42' during 1934–39, then just '42' during 1939–41 and finally 'byf' after 1941.

The P 08 required around 1,200 operations on approximately 750 machine tools to produce. By contrast, the Walther P 38 which replaced it required only 700 operations on 450 machine tools. This additional complexity was reflected in the price. The German government paid 46 Marks (roughly \$11 at period exchange rates) for each P 08 in 1908, including a spare magazine but excluding screwdrivers, holsters and cleaning rods. For comparison, a Gewehr 98 rifle cost an average of 65 Marks at the same time. This was a military contract price, however; commercial pistols sold for around 75 Marks at the same time.

Estimates of Luger production by year vary, and the matter is complicated by different reporting years used by various companies, production overlapping year ends and differences between production and military acceptance. Even total production can be disputed, though the table opposite represents a reasonable modern consensus, excluding the revived Mauser and Krieghoff guns. The total lack of any 1915-marked guns from Erfurt is extremely odd, and may relate to efforts to boost carbine production there; it has led some to offer estimates of higher Luger production including the 'missing' pistols.

OPPOSITE

New Model Parabellums featured an extractor which protruded when a round was chambered. Most were marked in German, but contract or commercial examples used appropriate languages – Portuguese, in the case of this Brazilian example. (Courtesy Douglas de Souza Aguiar Jr)

As one of the first semi-automatic pistols available, the Parabellum saw good commercial sales in the early years of the 20th century. The complex and high-quality manufacturing required made it an expensive weapon for civilians, however, and the vast majority of commercial pistols sold in the period were simpler (and consequently cheaper) blowback pistols firing lower-powered cartridges. The largest market was the United States, and most pistols intended for sale there had an 'American Eagle' rolled into the receiver above the chamber and English 'Safe' and 'Loaded'

DATES	DWM (GERMAN P 08 AND LP 08)	MAUSER (GERMAN P 08)	ERFURT (P 08 AND LP 08)	OTHER	TOTAL
1900–19				131,136 (DWM: foreign contracts and commercial production)	131,136
1906–16				40,000 (DWM: P 04 production)	40,000
1906–11	60,520		10,000		70,520
1912	10,000		21,000		31,000
1913	26,050		23,000		49,050
1914	40,300		30,000		70,300
1915	136,500				136,500
1916	183,000		75,000		258,000
1917	173,000		190,000		363,000
1918	118,000		160,000		278,000
1919–30				204,248 (DWM: foreign, police and commercial production)	204,248
1921–22				6,000 (Vickers: KNIL contract)	6,000
1918–33				17,873 (W + F Bern: Modell 1900/06)	17,873
1925–34				12,000 (Simson: military production)	12,000
1934		11,000			11,000
1935		54,000			54,000
1936		89,500			89,500
1937		126,000			126,000
1938		114,000			114,000
1939		123,500			123,500
1940		137,000			137,000
1941		145,000			145,000
1942		110,000			110,000
1933–46				29,858 (W + F Bern: Modell 06/29)	29,858
1935–45				14,500 (Krieghoff: Luftwaffe and commercial production)	14,500
1935–43				50,000 (Mauser: commercial, export, police and forestry service production)	50,000
1945–46				3,500 (Mauser: French production)	3,500
TOTAL	747,370	910,000	509,000	509,115	2,675,485

markings on the safety catch and extractor (see page 17). They were distributed by DWM's US agent, Hans Tauscher of New York, who felt 'Luger' was a better name than 'Parabellum' and always referred to the pistol as such, popularizing the name in the English-speaking world. Colt and Browning brought a lawsuit to prevent the Parabellum's sale in the United States, alleging it infringed Browning's 1897 patent on recoil-operated pistols. The US courts unsurprisingly found against them, because if a patent was understood to cover any weapon operated by



The Brazilian 'Cangaceiro' (bandit) Chico Pereira with a privately purchased Luger 'Artillery' in 9mm, c.1925. (Courtesy Rostand Medeiros)



recoil (as it had to be, to cover the Luger) then Browning himself would be in breach of Maxim's earlier patent on recoil operation.

Tauscher had retained his original German nationality, and his business was confiscated when the United States entered World War I in 1917. In 1922, the US government granted the US rights to the Luger patents to H.J. Panzer & Co., who came to an agreement with A.F. Stoeger & Co., DWM's preferred licensee. Stoeger registered 'Parabellum' and 'Luger' as trademarks in the United States, which would lead to an interesting situation later. Most Lugers imported by Stoeger carried his branding, though some companies such as Abercrombie & Fitch imported guns directly.



Highly decorated pistols, often with matching cases, were given as 'presentation pieces' to high-ranking military officers and political leaders in the hope of generating future sales. These often featured elaborate engraving, gold plating and inlays of ivory. None of the manufacturers did such work in house, instead sending the guns out for decoration after manufacture. (© Royal Armouries XII.11476)

Many wartime commercial pistols used parts which failed rigorous military quality controls but were still serviceable, while commercial pistols sold immediately after World War I often contained military parts, or were refurbished ex-military weapons. Parabellums produced in Germany in the early 1920s were restricted to 7.65mm calibre and barrels of 100mm or less (usually 90mm, 95mm or 98mm) by the Versailles Treaty, though some were rebarrelled abroad. Sales declined severely in the 1930s, both because of the 1929 Great Depression and the appearance of both the Colt 1911 and more modern 9mm pistols. After World War II, the handgun market was flooded with captured 'war trophy' Lugers, often at low prices.

The Luger is revived

Aside from 'bring-back' guns which came home with returning servicemen, thousands of war-surplus Lugers were imported into the United States after World War II, notably by the Interarms company run by Sam Cummings. He purchased large numbers of surplus weapons cheaply in Europe immediately after the war, from cash-strapped governments happy to receive money for weapons they would otherwise have destroyed or dumped at sea. These guns were refurbished in Britain before being shipped to the United States where they were sold at very competitive prices by mail order. Lobbying from US gun companies (who could not compete against these cheap imports) and concerns over the easy availability of guns to criminals led to the 1968 Gun Control Act, however. This made import of war-surplus foreign weapons much more difficult, though in practice the supply of cheap wartime guns was running out by then anyway. The 1968 Act only applied to 'war surplus' weapons, not newly produced ones, and Interarms persuaded Mauser to resume production of the Luger in 1967, for commercial sale in the United States.

Four revived Mauser Parabellums: a 150mm-barrel version with a satin finish (1); the basic model produced for Interarms (2); a heavy-barrel target model (3); and a '75th Anniversary' P 08 commemorative (4). (© Royal Armouries PR.12887, PR.12885, PR.12888 and PR.13520)



Mauser initially believed that resuming production would be reasonably straightforward, because the company still possessed the original production blueprints for the P 08. These did not meet 1960s standards, however, and would need to be expensively redrawn. As an alternative, Mauser approached Waffenfabrik Bern, which produced the Swiss Modell 06/29 Luger until 1947. For DM 259,000 (about \$60,000), Mauser received complete blueprint packages, tooling, jigs and gauges, although these were not always directly usable. Mauser began production of new 7.65mm and 9mm pistols from 1969. The new Mauser pistols were effectively copies of the Swiss Modell 06/29, however. This made sense from Mauser's point of view, because the Swiss changes simplified production and made the weapon more cost-effective. Cummings was adamant, though, that his customers wanted the iconic German Luger. Interarms eventually agreed to take the initial Swiss-style pistols (known as the Modell 29/70) provided Mauser modified the design so future deliveries looked more like P 08s. Obviously, changing an existing production line involved costs for Mauser, both directly and in lost production, but they had little alternative. Even so, the resulting guns were not completely identical to the P 08, resembling a New Model with grip safety and no stock lug. They appeared in late 1971, and were known as the Modell 06/73.

Although the Modell 06/73 sold reasonably well, it was never the commercial success either party hoped for, and Mauser ceased production of new pistols in 1986. The company continued to assemble pistols from existing components until 1998, however. As a marketing ploy, these were targeted at the collector's market in a series of limited 'commemorative' editions of only 250 weapons each, copying desirable historical Lugers such as the 'Artillery Model' or the US 'Cartridge Counter' model, with the base pistol modified using custom-made barrels, sights and other components and engraved appropriately.

Mauser considered producing a .45 ACP version, but only two prototypes were produced.

In 2006, Krieghoff produced exact copies of the P 08, using modern five-axis CNC machines. These copies were well made, but very expensive at more than €10,500/\$8,000 each and only 200 were produced.

ERMA and Stoeger 'Lugers'

Erfurter Maschinenfabrik (ERMA) produced several sub-calibre training units for the Luger before World War II, but after 1945 the plant was in the Soviet occupation zone. The company was reconstituted in the West, and produced a blowback .22 LR target pistol (the EP 22) in 1964. This strongly resembled the Parabellum, using the toggle system developed for the earlier conversion kit. A second model, the KGP 68, appeared in 1968. This resembled an improved EP 22, but chambered 7.65mm ACP or .380 ACP cartridges, with the toggle system modified to a delayed-blowback system. The KGP 68 was followed by the KGP 69, essentially an updated and improved EP 22. Although often referred to as 'ERMA

Lugers', and despite the strong visual resemblance, these guns also do not form part of the Luger family.

The revived Mauser/Interarms pistols legally had to be referred to as 'Parabellums', because 'Luger' was registered as a US trademark in the 1930s by DWM's US importer, A.F. Stoeger & Co. From 1969 to 1985, Stoeger marketed its own .22 LR pistols under the Luger branding, in both standard and target pistol configurations. Although these guns had a strong (and entirely intentional) visual resemblance to the famous P 08, they were simple blowback designs without a locked breech. Despite the branding and visual resemblance, though, they cannot be considered 'Lugers' in any real sense.



Two versions of the ERMA 4mm sub-calibre trainers produced to allow cheap practice without the need for a full-sized firing range, one in its wooden case and the other installed on a P 08. (© Royal Armouries PR.12890 and PR.10773)

ERMA Luger lookalikes – from the top, a KGP 68 in 7.65mm Short (1), a KGP 68A in 9mm Short (2) and an EP 22 in .22 LR (3). (© Royal Armouries PR.4135, PR.12648 and PR.10474)



A Stoeger .22 LR 'Luger'. Despite the strong and intentional physical resemblance, these blowback designs were only suitable for light cartridges. (© Royal Armouries PR.7855)



CONCLUSION

The Luger was a ground-breaking weapon when it appeared. Its stand-out quality of design is evident when compared to that of its immediate contemporaries such as the Mauser, Mannlicher and Roth, which quickly fell by the wayside. By contrast, the Luger was widely adopted, and generally well regarded by users. It served successfully through both world wars, and was ultimately replaced not by something offering better performance, but by something which could be manufactured more cheaply – the Luger was a product of its time, dependent on high-quality machining and craftsmanship, and did not suit a world in which weapons were mass-produced from sheet-metal stampings. Its toggle-action mechanism was strong and effective, but expensive to produce – strikingly, while Spanish and Chinese workshops produced innumerable cheap Mauser ‘Broomhandle’ copies, they never copied the Luger – and not used on later pistols, with manufacturers preferring the simpler Browning-designed dropping-link mechanism despite its theoretically slightly poorer accuracy. Even so, the Luger had a lasting impact on pistol design. Its overall configuration, with the detachable box magazine placed in the grip, was followed by almost all subsequent pistols.

Battlefields are generally dominated by long guns, and most pistols were only used for close-range personal defence. The Luger was a rare exception to this, because the stocked LP 08 effectively gave birth to an entirely new class of weapon, the submachine gun. Perhaps the Luger’s most important legacy, though, was its ammunition. The 9mm Parabellum (9×19mm) round became the standard NATO pistol round, and has dominated Western submachine-gun and pistol design ever since.

The Luger’s success, combined with frequent film and television appearances, made it one of the most recognizable pistols of the 20th century. It may have been surpassed technically by modern high-capacity semi-automatics, but surviving examples can still match them for accuracy. It remains almost the only wartime weapon actually put back into production – a fitting tribute to what must be judged one of the most important handguns ever produced.

OPPOSITE

A *Gefreiter* (corporal) armed with a P 08 pistol during the fighting for Kerch, in the Crimea, during World War II. He has a stick grenade tucked behind his pistol holster, and spare ammunition for his squad’s MG 34 machine gun draped round his neck. (Tom Laemlein/Armor Plate Press)



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A German officer directs troops near Kerch in the Crimea during 1942. Although production of the Luger ended in September that year, it remained in German military service until the end of World War II. (Mondadori Portfolio via Getty Images)

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For Charlie McKeown, Weapons Collection Manager at the Small Arms School Corps, for his help with this and other books.

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Editor's note

Metric measurements are used in this book. For ease of comparison please refer to the following conversion table:

1m = 1.09yd / 3.28ft / 39.37in
1cm = 0.39in
1mm = 0.04in
1kg = 2.20lb
1g = 0.04oz

The Royal Armouries

The Royal Armouries is Britain's national museum of arms and armour, and one of the most important museums of its type in the world. Its origins lie in the Middle Ages, and at its core is the celebrated collection originating in the nation's working arsenal, assembled over many centuries at the Tower of London. In the reign of Elizabeth I, selected items began to be arranged for display to visitors, making the Royal Armouries heir to one of the oldest deliberately created visitor attractions in the country. The collection is now housed and displayed at three sites: the White Tower at the Tower of London, a purpose-built museum in Leeds, and Fort Nelson near Portsmouth. To find out more, explore online at collections.royalarmouries.org

Front cover, above: A Pistolet 08 in the Small Arms School Collection. The P 08 was the most common of the Luger models by a significant margin.

Front cover, below: A Soviet officer tries out one of the countless thousands of Lugers captured on the Eastern Front during World War II. Captured Lugers were popular souvenirs, whether or not their new owners planned to use them in anger. (Herbert Hoffmann/ullstein bild via Getty Images)

Title page: Though short-ranged compared to a rifle, the Luger's compactness and rapid fire made it a useful weapon for house clearing, as shown here after the German capture of Sevastopol, Crimea, in July 1942. (Keystone/Getty Images)